The RUBBER AGE

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Published Twice-a-Month by

The PALMERTON PUBLISHING CO., Inc.

(Publication Office—1-3 Peace Street, New Brunswick, N. J.)

Editorial Office: 250 West 57th Street, New York City

Entered as Second Class Matter, August 24, 1927, at the Post Office at New Brunswick, N. J., under Act of March 3, 1879.

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VOL. 23, No. 1 APRIL 10, 1928

Rubber Restriction To Be Abolished At End of October

British Premier Surprises Rubber Industry by Announcement That Stevenson Scheme Will Continue on Present Basis Until October 31 and Then Be Cancelled—Rubber and Share Markets Are Demoralized—Prices Drop 6½ Cents on First Day—Future Situation Uncertain

IN a statement which took all parts of the rubber industry completely by surprise, Prime Minister Stanley Baldwin announced in the British House of Commons on April 4 that all restrictions on the exportation of rubber from Malaya and Ceylon would be abolished on November 1. Mr. Baldwin indicated that such would be the recommendation of the Civil Research Committee which has been investigating the legislation under his instructions and that the Government would approve. In the meantime, the present restriction regulations will continue in force.

While it was known that the Prime Minister would make a statement on the subject, practically no one interested in rubber expected such drastic action. The general belief was that some arrangement for gradually retiring the now-famous Stevenson Scheme would be brought forward and that the retirement might extend over two years or even more.

Markets Completely Upset

The result of the announcement was to completely upset the rubber markets of New York and London as well as the market for rubber plantation shares in London. Crude rubber prices immediately declined to 21 cents, a drop of 6½ cents, with no buyers. The Rubber Exchange of New York set a new trading record on April 4, there being 3,594 lots traded or 774 lots more than changed hands on the preceding record day. The April 4 turn-over represented 8,985 long tons valued, at 21 cents per pound, at well over $4,000,000. All records for volume of business in an hour, as well as a day, were broken. Before 11 o'clock, when the first hour of trading ended, a record number of 1,439 lots had been traded. July, September and December were the positions principally traded in. Both London and New York markets opened weak on the following day and the decline was apparently due to continue.

Mr. Baldwin's announcement was made at 3:00 p. m. London time or 10:00 a. m. New York time. Criticism of his action immediately developed. To his critics in the House of Commons Mr. Baldwin promised that an opportunity would be given later for debate on his action although he pointed out that the restrictions would be lifted by action through the Colonial Office instead of through Parliament. Rubber restriction was originally imposed by local legislatures in Malaya and Ceylon under directions from the Colonial Office.

Other critics were found among the London papers, some of whom found fault with the method of removing restriction rather than the policy. Large rubber producers and agents also were quick to register their dislike for the Prime Minister's action. Wild estimates were immediately made as to the loss which has been occasioned the British rubber growers by his action.

Appraisal Difficult Now

Since such abrupt removal of restriction had been looked upon almost as an impossibility, no one was able to put a reasoned appraisal on the action immediately after it was done. It is regarded as inescapable that rubber prices will be much lower for a long time to come. World stocks at the present moment are generous and even if demand should be active between now and next November, they would not be seriously depleted. Buyers will therefore be wary of commitments in the meantime and after November 1, when Malaya and Ceylon will ship rubber without restrictions, it is anticipated that such a tonnage of rubber will be forthcoming that rubber will sell at a very low price.

The losses that American rubber manufacturers, and particularily those in the buying pool, may have met by reason of their commitments were a matter of speculation. The pool is credited with having many thousands of tons of rubber purchased at prices running up to 41 cents per pound.

Many had expected that the Prime Minister's announcement would take the form of an interim report in order that the British might have more time to attempt to induce

RUBBER AGE INDEX IN THIS ISSUE

A complete index to Volume 22 of THE RUBBER AGE, which ended with the March 25 issue, is included as Section II of this issue. Subscribers who follow the common practice of filing their trade journals for future reference will find this index of great assistance in locating the articles and principal news stories which appeared in THE RUBBER AGE during the last six months. Additional copies of the index will be supplied upon request. With this issue THE RUBBER AGE begins its twelfth year of publication. Another index covering Volume No. 23 will be issued six months hence and subscribers will accordingly find it of value to preserve the numbers as they are issued twice monthly.

the Dutch, whose non-cooperation really wrecked the Stevenson Scheme, to come into some sort of a cooperative arrangement to support prices. A Dutch committee had already been appointed to travel to London, and perhaps eventually to the United States, to work out a scheme for combined selling of rubber to support a fair price.

Since the Dutch were taking seriously the prospect that the British might let restriction lapse and thus remove the umbrella which has sheltered them (the Dutch) so profitably during the last five years, they were more inclined to consider cooperation than at any time since restriction was first talked of. Just what action they will be inclined to take now that the British have already acted is problematical. Combined selling is regarded as a remedy that may be tried by the Dutch and British combined, but whether a sufficient tonnage could be absolutely controlled to manipulate the price of rubber is questionable.

Move Welcomed in U. S.

Abolition of restriction is generally welcomed in the United States and in some quarters in Britain. American manufacturers and others holding rubber have naturally to face an immediate financial loss and would have preferred some more gradual method of removal to ease the prices downward instead of dropping them precipitately. Many people in London had come to regard the Stevenson Scheme as ineffective and impractical and have advocated its removal for a long time. They regard that inefficiency will now be squeezed out of British rubber planting and that the policy of the survival of the fittest, which was rejected in 1922, will ultimately prove to be the best.

Among those who approved Mr. Baldwin's action was F. R. Henderson, president of the Rubber Exchange of New York. He said that he regarded the action as farsighted statesmanship and that it was really based on the better interests of Britain.

The question of reducing tire prices as a result of the lower rubber prices was immediately brought up in the American press. This is a subject which the American tire manufacturers have been trying to evade since the last considerable drop in rubber prices which came on February 8 when Mr. Baldwin appointed his committee. The low-priced rubber will not enter into tire manufacturing for some months, of course, and a price reduction on tires is not logical before. The rumors that one of the larger manufacturers is to take the leadership in such a cut persist, however, and is feared that dealers will slow up purchases in anticipation of it.

The sixth year of rubber restriction, now known to be its last, will come to an end on October 31. Originally adopted as temporary legislation to correct the oversupply of rubber which kept rubber prices well below 20 cents per pound in 1921 and 1922, it proved to be slow in action and was accordingly carried along with frequent revisions.

Rubber Technologists Busy With Meetings and Reprints

Rubber Division of American Chemical Society to Hold Spring Meeting on April 18 and Local Meetings Soon Thereafter—First Volume of Technical Reprints is Almost Ready

WITH both general and local group meetings scheduled, local group membership campaigns under way, and the first volume of its technical reprints due to appear, the Rubber Division of the American Chemical Society is having the busiest April it has known in some years.

The general meeting is the regular semi-annual spring gathering. It will be held at St. Louis on Wednesday, April 18, at the Hotel Coronado. Fourteen papers covering a wide range of technical rubber subjects will be on the program. Unlike some of the meetings in the past at which topics such as crude or reclaimed rubber have occupied most of the time, six or more topics will receive attention this year with almost equal emphasis. In addition to the several rubber companies and supply houses who will have speakers on the program, three schools will be represented. These are the Municipal University of Akron, Ohio State University and the University of Michigan.

Abstracts of the papers to be read at St. Louis are printed on Pages 21 and 22 of this issue of The Rubber Age. The authors and their connections are indicated in each case.

Although it is realized that the reading and discussion of so many papers will consume considerable time, officers of the Division hope that it will be possible to finish all of them in one day. Should that prove impossible, the last papers will be read on the following morning.

The annual spring meeting of other divisions of the American Chemical Society will be held at the same time as the Rubber Division meeting and officers of the Society will hold business meetings as well.

Division to Have Banquet

The Rubber Division expects about 150 members to attend the St. Louis meeting. The regular banquet of the Division will be held on the evening of Wednesday, April 18. Rubber chemists of the Cupples Company, located in St. Louis, have been active in arranging for the banquet.

At the business meeting of the Division, which will also be held on April 18, various committee reports will be heard, including one covering the organization of local groups of the Division in Akron, Boston, Los Angeles and New York. All of these with the exception of the one at Boston have already been organized and the first meeting in Boston is scheduled for May 9.

The New York group, which held its first meeting in January, will meet again on April 25 at the Town Hall Club. The call for the meeting was issued by W. A. Gibbons, chairman of the group. The meeting will be at 6:30 p. m., with dinner. Dr. David Spence of the Intercontinental Rubber Company will speak in connection with the showing of several reels of motion pictures on the cultivation of the guayule shrub and the preparation of guayule rubber. Reservations for the dinner should be sent to the secretary, D. F. Cranor, in care of the Binney & Smith Company, 41 East 42nd street, New York City.

No additional announcement concerning the proposed Boston meeting has been made since the last report as printed in the March 10 issue of THE RUBBER AGE. Four papers are scheduled. The meeting will be held at the Boston Chamber of Commerce on Wednesday, May 9, beginning with dinner at 6:00 p. m.

Group Membership Campaign

The local groups already organized in Akron, New York and Los Angeles are beginning their membership campaigns to put the group organization on a permanent basis. Anyone interested in the rubber industry may become a member of the respective groups and by so doing become a member of the Rubber Division upon fulfillment of the following conditions: If he is already a member of the American Chemical Society, he may become a member of the local group, and thus of the Rubber Division, upon the payment of the annual dues in the Division amounting to $2.00. If he is not a member of the Society, he may become an associate member of the local group, and likewise of the Rubber Division, upon payment of annual dues of $4.00. In return for these dues, each member or associate member will be entitled to attend all meetings of the local groups and Division and in addition to receive all publications of the Division.

Leadership in the drive for members has been taken by the Akron group. R. J. Bonstein, secretary-treasurer of the group, states in his announcement that the officers of the Akron group are making plans for another meeting soon after the Divisional meeting in St. Louis and at that time the Akron group hopes to have a paid-up membership of 500.

The first volume of reprints to be issued by the Rubber Division is now being bound and will probably be distributed in April. It contains almost 200 pages of articles on rubber technology reprinted principally from *Industrial and Engineering Chemistry*, the official organ of the A. C. S. The first volume will also contain two articles reprinted from THE RUBBER AGE. This gathering together of important articles into compact and convenient form for the technologists of the rubber industry was authorized at the meeting of the Rubber Division last September. Copies of the book will be distributed to members and associate members of the Division. Further information concerning it may be secured from C. C. Davis, 62 Lewis Road, Belmont, Mass., who has had the editorial work in hand.

The United Fruit Company Tries Rubber in Costa Rica

In an Effort to Bring Abandoned Banana Lands Back Into Use, Extensive Experiments Are Being Made With Hevea Culture—Government Survey Party Aided at Start—Prospects Are Considered Encouraging

DURING 1923 the Caribbean party of the crude rubber survey which the United States government was making throughout the world located a number of mature Hevea trees in Costa Rica. The Hevea seeds thereby made available to the investigators offered an opportunity for the establishment of small experimental plantings of rubber to test the suitability of the region for such a crop. In making these experiments the survey party was fortunate to have the cooperation of the United States Fruit Company which has been a leading grower of bananas in Costa Rica and other countries for many years.

The Hevea seeds were accordingly germinated at the Guapiles station of the United Fruit Company, near Port Limon in Costa Rica. Following germination, the seedlings were given proper attention by the agriculturists of the company. In 1927 these trees were revisited by J. C. Treadwell, who headed the survey party in 1923. He found the trees flourishing. Numbers of them had attained a diameter of 5½ to 6 inches at three feet above the ground. Experimental tapping cuts were laid out and the first tapping was made in May, 1927. The results were encouraging. The soil on which these trees are growing is deep, friable sandy loam. The elevation is about 800 feet above sea level.

The United Fruit Company now has thousands of acres of banana land in Central America which it has had to abandon as being of no further use for banana culture. The problem has been to find some profitable use to which the land might be put. Accordingly, the rubber experiments commanded a real interest on the part of the company. Rubber, however, is only one of the products which the company has studied in the effort to bring the abandoned banana land back into use.

After the first experiments in which the government's crude rubber survey party had a part, the company began other experiments on a larger scale. The acreage of its experimental areas now amounts to more than 200 acres. Rather less than three years ago it started an experimental rubber plantation at Cairo in Costa Rica, also not far from Port Limon. Hevea seeds were sown in seed-beds from which the seedlings were transplanted to three sections of widely different character. A part of the land was, when cleared, in second growth timber and wild cane, with little grass. A second part, when cleared, was in wild cane and light grass and was fairly grassy when the plants were set out. The third section was, when planted, fairly open grassy area.

A recent report on 884 trees set out about two years ago shows a marked difference in growth under these different conditions. The young rubber trees in the first named section have attained a maximum height of 25 feet with a minimum of seven. In the second section the maximum height was 20 feet and minimum was five, while in the third section the height ranged from 20 feet down to four. In other words, the most rapid growth has occurred on land originally jungle and which was covered with second growth timber and wild cane immediately before it was cleared for rubber planting.

A summary of height of the young trees for the entire area is as follows: 32 per cent of the trees were under 10 feet in height; 36 per cent were between 10 and 15 feet; 29 per cent were between 15 and 20 feet; and 3 per cent were between 20 and 25 feet. The growth during the year immediately preceding the report had been considerable. The previous annual report had shown the following height limits: 16 per cent, under three feet; 64 per cent, between three and six feet; 17 per cent, between six and nine feet; and 3 per cent, between 10 and 11 feet.

Late in 1927 the larger trees were from four and one-half to six inches in circumference three feet above the ground. Rubber experts call this a very fair growth.

During 1927 the plantation was well cleaned all over at intervals of three months and midway between cleaning

Luxuriant Growth of Grass on Abandoned Banana Lands

Young Hevea Trees on United Fruit Company Plantation

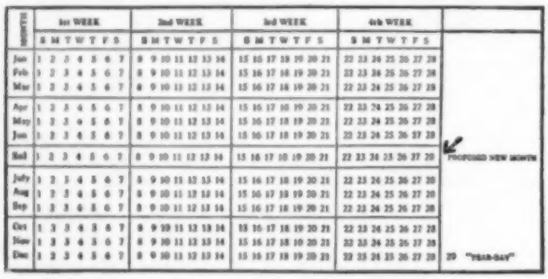
periods the trees were circled. The superintendent has reported to the home office in Boston that no disease or insect injury of any kind has been noted. Officials of the company recognize that it is still much too early to make any predictions as to probable yield, but they are encouraged by the satisfactory growth to believe that the yield will be fully comparable with other plantations.

Further experiments in rubber growing have been conducted by the United Fruit Company in Honduras and on the Panama division of their properties near Almirante. At the latter place some thousand trees have been very carefully planted and cared for and the development is showing satisfactory progress. The soil in this locality is a silty loam with a water table probably three or four feet below the surface and while initial growth is better than in Costa Rica, the ultimate vitality of the trees may possibly be not as good.

While working in Central America in 1923 the rubber survey party already referred to carried seeds from Costa Rica to the Canal Zone. These were germinated and subsequently set out by a Mr. Cooper on his banana farm near Frijoles. In 1927 Mr. Treadwell visited the banana farm and found the trees to have flourished, the growth being about comparable to trees of the same age in Sumatra.

Rubber Men Endorse Fixed Calendar

OFFICIALS of six prominent rubber companies have endorsed the proposal to adopt the international fixed calender of 13 months each containing 28 days, according to a recent report of George B. Eastman, chief sponsor of



The Proposed Fixed Calendar

the movement in the United States. These officials are G. H. Carnahan, president of the Intercontinental Rubber Company; William O. Cutter, vice-president of the United States Rubber Company; J. A. MacMillan, president of the Dayton Rubber Manufacturing Company; Harry Hough, former president of the B. F. Goodrich Co.; Jacob Pfeiffer, president of the Miller Rubber Company, and A. V. Bristol, comptroller of the American Hard Rubber Company.

The international fixed calender would divide the year into 13 months of 28 days, each comprising four complete weeks, beginning on Sunday and ending on Saturday. The extra month would be inserted between June and July. The last day in every year would be an Extra-Sabbath eighth day, ending the last week and dated December 29. A Leap-day would be similarily inserted as of June 29th every four years.

The chief advantage claimed for the fixed calender relate to business accounting and comparisons.

Suggests Guayule for Morocco

The January issue of *Revue General du Caoutchouc*, of Paris, in discussing the history of guayule rubber, suggests the opportunities for the cultivation of guayule in Morocco and calls attention to the similarity in climatic and soil conditions between lower Morocco and the area in California where guayule is now being so successfully grown.

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Abstracts of Chemists' Papers To Be Read at St. Louis

Papers To Be Delivered at St. Louis Present a Wide and Interesting Range of Subjects by Well-Known Chemists—Meeting of Rubber Division May Be Limited to Single Day

Abstracts of the papers which will be read before the annual spring meeting of the Rubber Division, American Chemical Society, in St. Louis, September 18, are given below. The authors, together with their company connections, are indicated in each case. The abstracts have been prepared by the authors. If it proves impossible to read and discuss all the papers on one day, those remaining will be read the following morning. As will be seen from the abstracts, an unusually wide range of subjects is covered in this program. Also an unusually large number of companies and schools is represented among the contributors. Papers read before the Divisional meetings of the American Chemical Society become the property of the Society, but, following their formal release, some of these will appear in full in THE RUBBER AGE.

Determination of Acidity of Raw Rubber by Water Extraction

A. D. CUMMINGS and H. E. SIMMONS,
Municipal University of Akron

A careful check of the results obtained for the water-soluble acids in a sample of rubber by direct water extraction was made. It was found that extraction of rubber with water near its boiling point gave an acid number which varied with the time of extraction. This is believed to be due to hydrolysis of esters as the same effect can be produced by oiling an acetone extract from the rubber. To avoid the difficulty, if determination of water-soluble acids is desired, acetone extraction followed by water extraction of this extract at the temperature of a water bath is recommended.

Some Observations With Ultra-Accelerators

A. D. CUMMINGS and H. E. SIMMONS,
Municipal University of Akron

The preparation of several thiuram sulfides, including dimethyl-diethyl-thiuram-disulfide not previously recorded in the literature, is described. Evidence is brought forth to indicate that the inactivity of thiurams derived from primary amines is due to their rapid decomposition into hydrogen sulfide and a mustard oil. The lack of activity of a compound made from carbon oxysulfide and an amine is noted. The equivalence of cure obtained from tetramethyl thiuram disulfide alone and from the monosulfide plus sulfur is discussed. Curing experiments were made and data on tensile and aging of the accelerated stocks are given.

The Dispersion of Pigments in Rubber

ERNST A. GRENQUIST, *Fisk Rubber Company*

In addition to particle size and shape, the degree of dispersion of a pigment such as carbon black undoubtedly has an important bearing on its reinforcing power in a rubber compound. This paper gives some preliminary results that have been obtained in an investigation of the factors affecting the final dispersion of pigments in rubber compounds. Certain mixtures have been followed microscopically from the uncured state through various stages of vulcanization to the final cured product. In general, it has been shown that the dispersion of a pigment in the uncured compound is influenced by the presence of other ingredients and also that important changes take place during the vulcanization process.

The Evaluation of Variable Temperature Cures, With Special Reference to Rubber Footwear and Proofed Goods Schedules

J. R. SHEPPARD, *Eagle Picher Lead Co.*, and W. B. WIEGAND,
Binney & Smith Co.

The exact evaluation of vulcanizing schedules involving variable temperatures, such as characterize footwear and proofed goods vulcanization, has in general been neglected because of the laborious character of the calculations. In this paper relations between the several variables pertaining to a curing schedule are developed and the evaluation of any cure becomes a corollary. Several optional procedures for applying the method are discussed and graphs of the most important relations are given to render its practical use rapid and convenient. By way of illustration the method is applied to typical footwear and proofing schedules.

An Experimental Determination of the Temperature Coefficient of Vulcanization With Litharge

J. R. SHEPPARD, *Eagle Picher Lead Co.*

A determination of the temperature coefficient of vulcanization on a typical litharge stock in press cures ranging from 242°F. to 332°F. yields 13°F. as the temperature interval responsible for a doubling of the curing intensity. Breaking tensile, elongation, tensiles at several fixed elongations, tensile product, energy and combined sulfur when used separately as criteria yield coefficients ranging from 12.6°F. to 13.7°F., values which agree within the limits of experimental error with the average for all criteria of 13°F. It follows that the character of the vulcanizate remains approximately the same as the temperature and time are jointly changed in such a way as to keep the total curing effect constant.

Abrasion Tests of Rubber Stocks Containing Various Types of Carbon Black

W. B. PLUMMER and D. J. BEAVER, *Combustion Utilities Corporation*

The abrasion loss of rubber stocks containing different types of carbon black was determined by means of the Williams abrasion apparatus. It was found that the abrasion loss per unit of work increased as the size of the abrasive increased up to a size of 0.45 mm. and then decreased quite rapidly. No adequate explanation for these results has been found. It was shown further that the ratio of the abrasion loss of unaged stocks containing various types of carbon black to these stocks after aging in the Geer oven was not constant since it was found that some types of carbon

black increase the rate of deterioration of rubber much more than other types.

The Effect of Various Types of Carbon Black on Certain Physical Properties of Rubber Compounds

D. J. Beaver and T. P. Keller, *Combustion Utilities Corporation*

The effect of various types of carbon black on the rate of cure, tensile properties, aging and abrasion loss of rubber was determined. It was found that the presence of different amounts of oxygen adsorbed on or combined with the black retards the rate of cure in direct properties obtainable from a given stock. The aging data shows that the higher the amount of oxygen on the black, the more rapid the deterioration of the rubber stock when aged at 70°C. in air. Other physical properties such as oil absorption, iodine absorption, acetone extract or color value could not be correlated with the effect of these blacks on the curing characteristics of rubber compounds.

Carbon Black—A Study of Its Volatile Constituents

C. R. Johnson, *Godfrey L. Cabot, Inc.*

As far as revealed by the literature, carbon black has never been completely analyzed chemically. In Bulletin 192, Bureau of Mines, a number of samples of carbon black are analyzed, but the findings are limited because only an ultimate organic combustion is used which does not of course reveal the real nature of the volatile constituents of the blacks. The bulletin does report an examination of the volatile constituents driven off up to 445° C., but since gases come off in considerable quantity up to 955° C., it is necessary to explore this region to determine analytically the volatile constituents of carbon black. This paper will contain rates of evolution at various temperatures, rates of evolution at various absolute pressures including extremely low pressures, complete analyses of a number of carbon blacks including volatile constituents, an examination of the influence of the quantity and nature of the volatile constituents on the behavior of carbon black when mixed and vulcanized with rubber.

The Effect of Repeated Reclaiming of Rubber

George W. Miller, *Akron Rubber Reclaiming Co.*

The question "Can rubber be repeatedly reclaimed without seriously affecting the quality of the reclaim?" is often asked. To throw some light on this point, a sample of whole tire reclaim was cured, then regenerated in a laboratory devulcanizer, and the cycle repeated three times. While repeated rcelaiming had no effect on the tensile of the resulting reclaim, the modulus increased and elongation decreased with each successive cycle. The chloroform extract and plasticity decreased with an accompanying increase in combined sulfur. The successive reclaims, incorporated in a low quality tread compound, imparted progressively decreasing elongation and tensile, with increasing modulus. Contrary to expectation, there was no increasing deterioration of aging properties, as far as could be judged by artificial aging.

An Accurate Method of Comparison of Scorching Qualities of Accelerators

H. R. Thies, *Miller Rubber Company*

A method of measuring scorching qualities of accelerators is given where the critical point or point of set up is determined by the non-solubility of the slightly vulcanized stock in gasoline. Various examples and comparisons are given. A system of index numbers is formulated for comparison of accelerators having definite values which readily shows the behavior of an accelerator at milling, and storing temperatures.

A Machine for Testing Rubber Products Used to Absorb Vibration

Franz D. Abbott, *Firestone Tire & Rubber Co.*

A machine for studying the effect of flexing rubber under compression is described. The operation of this machine in the testing of shock insulators, motor supports, and other rubber stocks that absorb vibration, or undergo flexure under compression, is given n detail. Ordinary tests such as tensile and elongation are insufficient in evaluating such products. Furthermore, the more recent static compression-set test is not satisfactory. Results of tests on various stocks as given with this device check with dynamometer and service tests. Under the conditions of test adopted the permanent-set is shown to approach a maximum in three or four hours. The temperature of the test piece rapidly reaches a maximum value. Data and curves are presented for comparison of set under flexure with tests under tension and with static compression.

Softeners and Anti-Softeners

Erle C. Zimmerman and Leslie V. Cooper, *Firestone Tire & Rubber Co.*

In the manufacture of rubber goods various materials are incorporated with the rubber in order to produce a mixture which will process more easily. Such materials are usually referred to as fluxes or softeners. A simple method of determining the relative effects of such materials is described. This consists in mixing the material in rubber under standardized conditions and determining the plasticity of the product by the Williams method.

Some materials show stiffening instead of softening action and both types are shown in the results reported in this paper. Benzidine and p-amido phenol are examples of materials which stiffen rubber.

The Accelerating Action of Some Aldehyde-Aniline and Aldehyde-O-Amino Thio Phenol Condensation Products

A. M. Clifford and C. E. Boord, *Ohio State University*

In the course of investigating the action of sulfur on aldehyde aniline condensation products in an attempt to trace the vulcanizing action of these substances, a number of compounds were prepared and their curing data compared with the original anil and also with 2-mercapto benzothiazole. These compounds were prepared on the supposition that the anils might undergo sulfurization to form thiazoles or similar bodies which might prove to be the true accelerators.

The Displacement of Mutually Miscible Liquids From Solid Surfaces

H. Judson Osterhof and F. E. Bartell, *University of Michigan*

Abstract not available.

R. G. A.'s Rubber Gifts Fund

THE British Rubber Growers' Association has been carrying on a highly benevolent work for the last fifteen years through its "Rubber Gifts Fund" which was started in 1913. It is the only charitable fund which the association has and is supported through the generosity of individual members of the association, several rubber producing companies and others interested in the plantation industry.

Since the fund was started approximately 6,000 square yards of rubber flooring have been provided for 37 hospitals, and 15,000 rubber hot-water bottles, 450 rubber aircushions, 400 dozen rubber toys and numerous rubber mattresses, sheets and other medical requisites have been distributed to hospitals and nursing homes.

Britain Goes in for Standardization

A MOVEMENT similar to the endeavors of the Committee on Simplified Practices, organized under the Department of Commerce by Secretary Hoover, is now being attempted in Great Britain, under the auspices of the British Board of Trade. A new committee has been set up with the idea of carrying on the development of standardization and simplification in manufacturing and industry. The membership of the committee will consist of representatives of various trade associations. The rubber manufacturing industry of Great Britain will, doubtless, come in for considerable study by the committee, especially in the matter of standardization of tire sizes, a subject which is also occupying the minds of Secretary Hoover's committee.

Measuring *the* Quality *of* Tires *in the* Laboratory

The Growing Practice of Purchasing by Specifications Makes It Advisable For Every Tire Manufacturer to Know How His Tire Compares With Others—Here's a Laboratory Report on 14 Balloon Tires

THERE is no doubt that large scale purchasing of the future will be done on specification. This does not mean necessarily that each bidder for business will have to manufacture his product to the same formula, but it does mean that purchasing agents are being drawn more and more from the technical schools and are buying less on appearance and more on tests and performance.

It is not unbelievable that the purchasing agent of a large railroad operating a fleet of trucks, will, before making his contract for tires, send three or four casings to his chemical laboratory and say "analyze these and give me a report." The evidence thus gathered will not be entirely conclusive, but it will at least give him a guide so that he will not be buying on price alone, which is well known to be a dangerous basis.

The enclosed table shows the results of exhaustive tests of 14 different tires made by nine different manufacturers, not all first quality brands as the tests show, but all sold as 29 x 4.40 balloons. The first data concerns the weight. Weight in itself means little except as taken in relation to volume when it might disclose compounds heavily loaded with fillers. Cross section and cross section height, diameter inflated, and tread width, all have to do with design and oversizing. It follows logically that a tire of larger cross section and greater area will cushion its load to better advantage.

Tread depth is obtained by cutting a cross section of the tire and measuring from the center of the tread to the point where it joins the cushion or breaker strip. This measurement is important because it shows the amount of tread wear which can be expected under normal conditions. In designing tires, engineers usually figure about .02 of an inch of tread for each 1,000 miles of wear. Of course, this can be prolonged to twice that amount by careful driving or cut in half by such negligence as allowing wheels to get out of alignment, sudden application of brakes, etc.

The angle of the cord is taken at the crown and at the sidewall. This is obtained by use of a sextant, and while not important in itself, tires which come closer to the 45-degree angle consistently are apt to run more uniformly

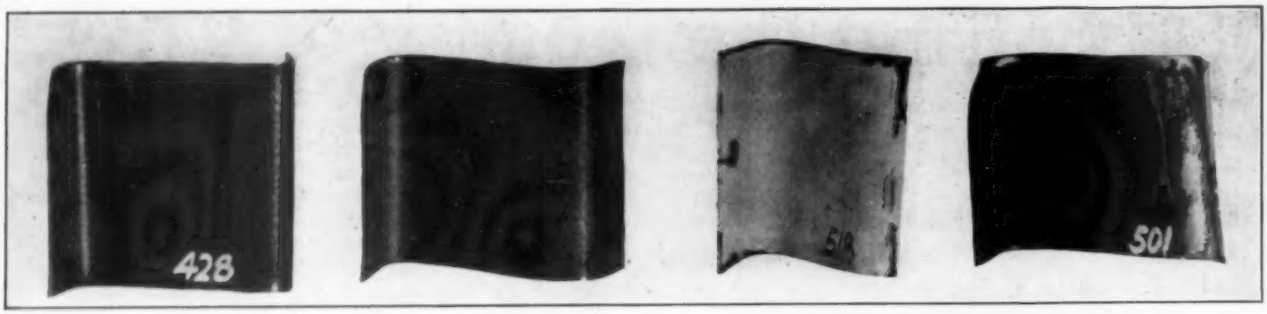
(*Concluded on Page 28*)

Laboratory Comparison of Fourteen 29 x 4.40 Tires Made by Nine Different Manufacturers

	Tire A	Tire B	Tire C	Tire D	Tire E	Tire F	Tire G	Tire H	Tire I	Tire J	Tire K	Tire L	Tire M	Tire N
Weight (lbs. & oz.)	14–9	15–11	14–0	14–15	13–11	16–1	16–5½	14–13½	13–5	14–2	13–10	14–7	14–9	14–11
Cross Section—														
Width (in.)	4.441	4.343	4.344	4.283	4.410	4.415	4.371	4.295	4.323	4.293	4.232	4.270	4.262	4.313
Height (in.)	4.773	4.742	4.625	4.656	4.754	4.773	4.765	4.640	4.679	4.422	4.632	4.578	4.570	4.586
Dia. Inflated	30.547	30.484	30.250	30.313	30.508	30.547	30.531	30.281	30.359	29.844	30.265	30.156	30.141	30.172
Tread Width (in.)	3 13/16	3 1/8	3 3/32	3¾	3 11/16	3⅝	3 21/32	2 31/32	2 51/64	3⅝	2⅞	3⅜	3 1/32	3 3/16
Tread Depth (in.)	.226	.218	.218	.218	.172	.218	.234	.234	.187	.203	.226	.218	.148	.172
Crown Thickness (in.)	.641	.594	.500	.566	.453	.564	.625	.625	.438	.484	.546	.535	.484	.438
Air Volume (cu. in.)	962	941	917		938	948	938	874	960	854	907	901	900	912
Material Vol. (cu. in.)	353	377	334	356	317	374	363	339	320	329	306	324	325	327
Cord Angle—														
Crown (degrees)	35¼	46¼	45	40¼	47	37½	41	38	44½	35	42¼	40¼	41	43¾
Sidewall (degrees)	42½	52	49¾	46¾	53¼	47	51½	45¾	53¼	41¾	48½	50¼	51¾	52½
Cord Makeup (a)	5/3	4/3	5/3	5/3	5/3	5/3	5/3	4/3	4/3	5/3	3/3	5/3	5/3	3/3
Cord Twist (a)	16.2/8.0	22.7/9.6	18.0/7.5	19.3/9.5	18.0/8.1	16.9/8.3	16.9/8.1	18.4/8.9	22.5/9.6	17.3/7.5	15.4/8.4	17.5/8.9	16.4/7.4	17.5/8.1
Cord Break—														
Bone Dry	16.1	11.5	13.3	13.9	15.1	13.1	15.2	11.0	12.0	14.9	13.0	14.4	14.3	12.8
Actual	19.0	11.8	15.9	15.8	17.3	16.0	17.3	13.1	12.9	17.1	16.2	15.6	15.7	14.7
Cord Stretch—														
Bone Dry	6.7	7.3	7.7	9.9	9.1	8.1	7.9	7.8	8.9	8.1	7.2	8.0	7.9	7.4
Actual	10.2	10.5	11.0	14.0	12.7	12.3	12.5	10.9	12.6	11.3	11.5	10.5	10.8	11.1
Adhesions—														
Sidewall and Carcass	30	25	23	28	29	19	25	28	31	26	16	27	19	14
Cushion and Cacrass	34	37	28	30	30	32	37	29	34	31	31	32	22	15
Plies 2 and 3	28	28	24	27	27	24	31	25	27	27	12	27	19	12
Breaker and Tread	49		31	49			55	49			23			
Tread Hardness	73	71	75	69	67	72	67	70	65	68	81	67	71	82
Tread Gravity	1.153	1.12	1.153	1.14	1.156	1.195	1.222	1.164	1.13	1.213	1.144	1.155	1.168	1.267
Tread Tensile (lbs.)	3190	3960	3360	3840	3420	2925	3690	3180	2880	3085	2095	2820	2430	1110
Tread Elongation (%)	537	587	562	575	550	587	612	600	562	550	337	587	562	312
Tread Set (%)	36	41	56	37	37	50	44	39	34	53	30	37	59	41
Bead Wire—														
Number	3–13	3–13	3–3 S.T.	2–13	3–3 S.T.	2–17	2–13	3–13	3–9	4 T.G.	7–C.	3–3 S.T.	2–17	3–3 S.T.
Size	.025	.025	.035	.028	.035	.025	.025	.025	.025	.072	.053	.035	.024	.035
Flippers—														
Number	1	1	1	1	1	1	1	1	1	1			1	1
Weight (oz.)	8.2	9.1	6.9	8.3	13.1	10.6	8.2	8.0	8.4	10.4			9.8	7.3
Width (in.)	4.0	4.0	3.25	2.375	2.875	3.5	3.25	3.625	3.625	2.75			3.5	3.13
Chafers—														
Number	2	2	2	2	1	1	1	2	2	2	1	1	1	2
Weight (oz.)	8.7–8.2	13.2–12.7	7.0–7.3	9.2–9.1	8.5	12.7	13.7	8.5–8.5	13.3–13.3	10.1–10.0	13.7	12.6	12.4	7.8–7.8
Width No. 1 (in.)	1.0	1.063	1.25	1.438	2.313	1.938	2.5	.938	1.188	1.25	2.188	2.125	1.75	1.313
Width No. 2 (in.)	1.813	2.25	1.438	1.375				1.25	1.938	2.063				1.563
Mnfr's. Designation of Grade of Tire	Heavy Duty	Heavy Duty	First	First	First	First	First	Regular	Regular	Regular	Second	Second	Second	Competitive
Relative Size of Manufacturer	Large*	Large	Large	Large	Medium	Medium	Small	Large	Large	Medium	Large	Medium	Medium	Large

(a) Approximate

*Tires produced by same manufacturers are as follows: A and H; B and I; C and H; E and L; F and M.



THERMOPRENE PAINT THERMOPRENE PAINT COMMERCIAL LACQUER COMMERCIAL LEAD AND OIL PAINT

Bending Tests on 1/16" Steel Panels Two Inches Wide and Four Inches Long. One End Bent at 0° C. and the Other at Room Temperature.

Protective Paint from Rubber

Protective Paint Prepared From Rubber is Now Ready for Commercial Use—Is Expected to Have Wide Range of Usefulness, Particularly Wherever Metal Parts Are Subjected to Excessive Corrosive Conditions

By HAROLD GRAY
The B. F. Goodrich Company, Akron, O.

RUBBER has long been considered for use in the paint industry. Certain of the physical properties of suitably compounded rubber—such as resilience, resistance to shock, low permeability to moisture, high resistance to abrasion, and its characteristic strength—make it a very promising starting material. Several attempts have been made to utilize its unusual properties. For instance, a small amount of rubber has sometimes been dissolved in the oil in regular lead and oil paints. No doubt in some cases this was for advertising purposes only, but in others a determined effort was made to utilize the physical properties of the rubber to give an improved product. Derivatives of rubber have also been tried, but without much success. The chlorinated product is apparently the only one that has found any commercial application, and that is very limited.[2]

A number of patents have been issued dealing with paints and varnishes made from hard rubber.[3] Whether or not any of them ever reached the market, they did not achieve any considerable commercial success.

Heretofore the use of the rubber hydrocarbon as such has been impractical, for a number of reasons. Solutions of rubber in organic solvents, so-called "cements," are very viscous and it is necessary to use low concentrations. Dilute solutions—say 2 to 5 per cent—are difficult to handle as far as brushing, spraying, dipping, etc., are concerned. After a film has been deposited, it is not satisfactory, owing to its tacky nature, until it is vulcanized. This could be made an air-curing process, but at least several days would be required. Small objects could be cured in heaters, as is now done with baking paints, but such a process would limit the use of the paint too closely. Even were it possible to obtain a smooth, even coat wherever desired, there would be difficulty in obtaining a proper cure, as frequently considerable trouble is encountered in vulcanizing films deposited from a cement.

In the course of an extended series of investigations started by Fisher,[4] there has been perfected in the Goodrich laboratories a technic for modifying the properties of rubber hydrocarbon by means of a change other than vulcanization. A series of products ranging from a tough, horny, balata-like substance to a brittle, pulverizable material resembling shellac is made available by this treatment. The hydrocarbon (which throughout this paper will be designated as "thermoprene") is very pure and has many unusual properties which make it a promising starting material for paints. The outstanding point of interest to the paint chemist is that the concentration of thermoprene in the solvent can be as high as 10 to 20 per cent and still be within the range of good brushing products. The chief difference between thermoprene paint and those previously made with a raw-rubber vehicle is that the former resembles a lacquer in that it needs no vulcanizing or curing operation.

Properties of Rubber Paint

RESISTANCE TO CHEMICAL ACTION—The resistance to acids, alkalies, corrosive gases, and corrosive chemicals in general is very good. Examples are sulfuric acid, sulfur dioxide, sulfur trioxide, hydrochloric acid, hydrogen sulfide, sodium hydroxide, sodium hypochlorite, and calcium hypochlorite.

RESISTANCE TO MOISTURE PENETRATION—Low permeability to moisture, desirable in any paint, is shown to a remarkable degree by films of thermoprene. A molded sheet (7 by 7 by 1/20 inch or 18 by 18 by 0.13 cm.) gained 0.365 per cent in weight when immersed in water at + 1° to + 2° C. for 345 days. Panels which were covered with the paint and immersed in water show practically none of the discoloration caused by moisture penetration. The importance of this very useful property is shown by the remarkable results obtained with the paint in salt water, salt spray, and under moist conditions in general.

ADHESION—Any paint to be of value must adhere firmly to the surface it covers. The high degree of adhesion of the new paint is one of its most important properties. It is practically impossible to separate the film from the underlying surface without actually cutting it. This property is valuable in a number of ways. For example, if a thermo-

[1] Presented as a part of the Symposium on Lacquers, Surfacers, and Thinners before the Section of Paint and Varnish Chemistry at the 73rd Meeting of the American Chemical Society, Richmond, Va., April 11 to 16, 1927. Reprinted by courtesy of *Industrial and Engineering Chemistry*.
[2] Lamble, *Oil Color Trades J.*, 57, 1250 (1920); *Kolloid-Z.*, 29, 150 (1921); *Caoutchouc & Gutta-percha*, 16, 9811 (1919).
[3] British Patent 243,966 (1925) on India-rubber varnishes is an example.
[4] *Ind. Eng. Chem.*, 19, 1325 (1927).

prene film on iron is ruptured, the exposed surface will rust very quickly. The rust, however, will spread very slowly from the exposed area, because the film adheres so firmly to the metal that it will not strip back. When the film is cut with a knife it does not shatter or flake. The cut or scratch is clean and only the portion actually in contact with the cutting device is affected.

ELASTICITY—The film is very elastic, as shown by the fact that a piece of steel (4 by 2 by 1/16 inch or 10 by 5 by 0.16 cm.) covered with three coats of thermoprene and cooled to — 18° to — 17° C. can be bent double without injury to the film. A sharp blow with a hammer results in nothing more than the cutting of the film at the point of contact. Some of the films were tested at temperatures as low as —46° to —51° C. and showed up as well as at 0° C. Cutting the film when cold results in a separation only at the cut portion, with no shattering or flaking.

RESISTANCE TO TEMPERATURE CHANGES—Another rather unusual feature of the paint is its resistance to sudden temperature changes. In one series of experiments the films (on steel) were cooled in an ice-salt bath and then put on a hot plate at 115° C. After 15 minutes on the hot plate the panels were plunged into the ice water again. This cycle was repeated ten to fifteen times with no apparent effect on the films.

PIGMENTATION PROPERTIES—Any desired pigment can be used in the paint and any color except a pure white can be obtained. The amount of pigment can be varied widely. The possible range extends from no pigment at all to as high as 250 or 300 volumes of pigment to 100 volumes of thermoprene. The practical range is yet to be determined. Good results are obtained with 70 volumes of pigment. Color may be imparted by organic dyes, using a white pigment as the filler. A very wide range of oils and softeners can be used. In some cases where a baking paint is desired, drying agents may be used.

SOLVENT PROPERTIES—The paint should probably be classed as a lacquer, since a solvent is used which does not remain as a part of the film. In general, the ordinary rubber solvents are used—such as gasoline, toluene, benzene, carbon tetrachloride, turpentine, kerosene, etc. The solvents are varied according to the use for which the paint is intended—i. e., brushing, spraying, or dipping.

Comprehensive tests have been conducted to determine the general characteristics of the paint. With respect to composition, the following factors were studied:

(1) Variations in physical properties of thermoprene.
(2) Effect of pigments. The more common ones were aluminum, asbestine, barytes, blanc fixe, chromic oxide, clay, gas black, graphite, iron oxide, lead chromate, lithopone, red lead, sienna, Titanox, ultramarine blue, white lead, whiting, zinc oxide, and a series of organic dyes.
(3) Variations in pigment concentration in under-coat and in top-coat.
(4) Effect of oils and softeners.
(5) Effect of driers in the drying oils.
(6) Time and temperature (compounds used for baking enamels).
(7) Surface. All the paints were tested on steel. A representative series was also tried on numerous other surfaces including alumnium, brass, and bronze (4 types), copper, Duralumin, iron (4 types), lead, nickel, tin, leaded tin, galvanized iron, zinc, magnesium, red oak, and white pine. Some tests were also made on hard and soft rubber.

Testing Program

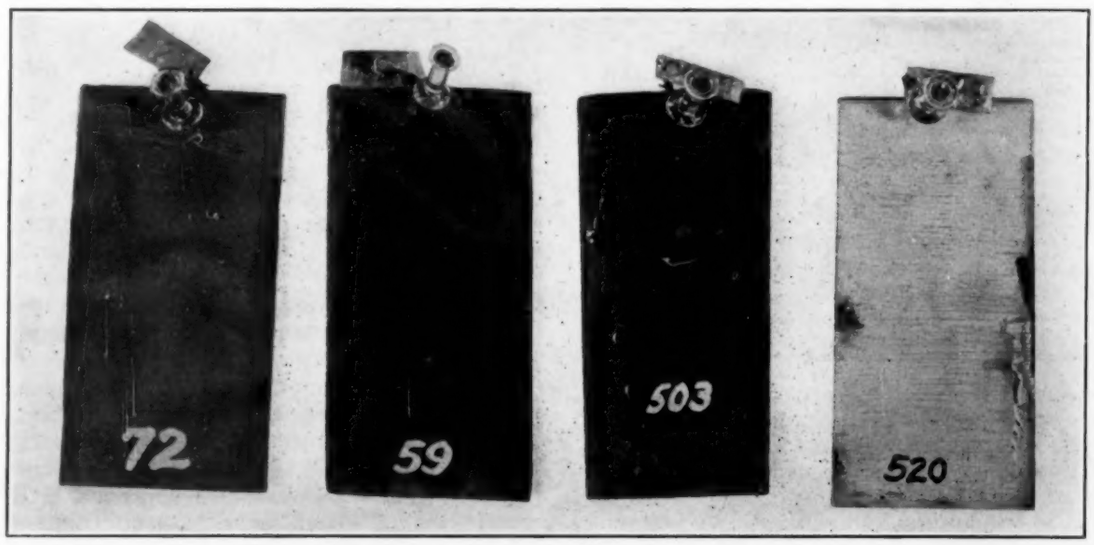
In making those tests on composition and general properties, three panels (4 by 12 inches or 10 by 30 cm.) were made in each case, always with three coats and sometimes with four of paint. Of each set, one panel was exposed on the roof on a rack facing south at an angle of 45 degrees from the vertical, one was cut up for laboratory tests, and one was stored for reference.

General properties of films were studied in a long series of laboratory tests. These properties included:

(1) Tack, warm, and cold.
(2) Color, original, after weathering, and after treatment with various chemicals.
(3) Adhesion, at room temperature, at—18° C. and in some cases at — 46° to — 51° C.
(4) Bending, at the same temperatures.
(5) Cutting, at the same temperatures.
(6) Behavior toward solvents.
(7) Corrosion resistance toward various chemicals and in the salt-spray test.
(8) Weather resistance; the panels on the roof were examined from time to time to observe such effects as checking, chalking, rusting, color changes, etc.

The elaboration of this program of testing required more than two years. At one time there were over twelve hundred weather-exposure panels under observation. The conclusions drawn from this testing program are briefly summarized as follows:

(1) Physical properties of the thermoprene are uniform, subject to accurate manufacturing control.
(2) Ordinary paint pigments can be successfully incorporated



THERMOPRENE PAINT THERMOPRENE PAINT COMMERCIAL LACQUER LEAD AND OIL PAINT

Results of Exposure of Painted Steel Panels to Salt Spray

into these paints over a wide volume range.

(3) Although oils and driers mix well with the paints, there is little advantage to be gained from their use.

(4) As in the case of ordinary paints, baking hardens the film.

(5) Both air-dried and baked films show good adhesion to most metallic and other surfaces. This adhesion persists at temperatures as low as —51° C.

(6) Direct exposure to weather and sunlight reveals a prevailing tendency toward chalking, occasional checking, and some rusting in spots.

(7) Exposure to acid and alkali and to salt spray indicates that thermoprene has exceptional protective properties.

Small-Scale Commercial Tests

The laboratory and roof experiments were supplemented by a series of semicommercial tests tending to show the type of service for which the paint is best adapted. For example, there has always been a great deal of trouble in obtaining a paint which would protect the metal in a salt works. Several test panels and test sections of metal work in such a factory showed that the thermoprene paint stood up much better than commercial paints that had been used.

The effect of salt water is further brought out by the photos on page 25. These panels were cut from a 4 by 12 inch panel and the edges are raw. The edges were left this way purposely to show how well the films would prevent rust-spreading. There is practically no spread of rust from the edge of the thermoprene paint panels 72 and 59.

In a cooling tower where the spray of steam and cooling water from tire vulcanizers was blown against a series of louvres in a fine spray, at the end of nine months the commercial paints were practically all destroyed, while a few thermoprene paints of a particular composition were in good condition at the end of sixteen months.

These preliminary development tests are now being augmented by painting tests in chemical plants.

Rubber Sixteenth Largest Industry

RUBBER manufacturing is the sixteenth largest industry in the United States, according to a compilation recently made by the *New York Times*. Included in the list, however, are such industries as construction and railroads which are sometimes thought of as services rather than industries in the sense of manufacturing. The rubber industry is seventeenth in point of invested capital and number of employees. Figures on the 20 leading industries were given as follows:

AMERICA'S TWENTY LEADING INDUSTRIES

Industry	Employes (Thousands)	Rank	Value of Products or Service*	Rank	Estimated Investment*	Rank
1. Agriculture	10,241	1	$16,963	1	$57,000	1
2. Construction	3,051	2	7,000	3	(No data)	4(?)
3. Railroads	2,184	3	7,396	2	27,800	2
4. Textiles	1,110	4	5,342	4	4,100	8
5. Machinery	858	5	5,020	5	(No data)	9(?)
6. Lumber	474	7	2,254	12	8,000	6
7. Iron and Steel	438	9	3,711	7	5,000	7
8. Automobiles	430	10	4,745	6	3,000	10
9. Oil	158	16	2,377	11	11,000	3
10. Coal	748	6	1,727	14	2,500	12
11. Electricity	230	13	1,783	13	9,500	5
12. Clothing	466	8	3,239	8	1,000	16
13. Publishing	296	12	2,482	10	1,200	13
14. Tel. and Tel.	381	11	935	20	2,600	11
15. Meat	120	20	3,050	9	1,200	14
16. **Rubber**	141	17	1,255	16	1,000	17
17. Shoes	207	14	1,061	18	700	18
18. Baking	160	15	1,268	15	600	19
19. Paper	124	19	972	19	1,200	15
20. Tobacco	132	18	1,091	17	(No data)	20(?)

* 000,000 omitted.

THE decline in the price of crude rubber is the outstanding cause for the drop in the import trade figures of the United States, according to a statement of the Department of Commerce. American imports from Asia during January of the current year totaled $103,336,557 as against $125,054,449 during January, 1927. The drop in value is almost entirely attributed to the decline in rubber values.

Supplier of Rubber Chemicals

ONE of the pioneers among the independent manufacturers' agents supplying chemicals and compounding materials to the rubber manufacturing industry is C. P. Hall, the organizer and present head of the C. P. Hall Company, of Akron.

C. P. HALL

While born in Ohio Mr. Hall received his early education and training at Huntington, W. Va., where his father was connected with the Standard Oil Company of New Jersey, and his first employment was also with the Standard. In 1914 he married and moved back to Ohio settling at Fitchville, where he remained for more than two years. Later he took a position with the purchasing department of the Firestone Tire & Rubber Company, at Akron, and it was here that he first conceived the idea of establishing himself as an agent for the manufacturers of the goods he was then buying for his company.

Accordingly, in 1919 he resigned from the Firestone organization and opened offices as a manufacturer's agent and independent supplier of rubber chemicals to the industry.

After building up a highly successful business in selling other people's products, the volume running into many thousands of dollars every year, Mr. Hall decided several years ago to enter the manufacturing end of the chemical industry for his own account. He therefore introduced Para-Flux, a softener which has found wide favor for use in tires, heels and mechanical goods. His most recent product is Stabilite, an anti-oxidant which not only stabilizes the cure but aids materially in resisting age, heat and sunlight checking.

Mr. Hall is a 32nd degree Mason and a member of the Akron City Club, Silver Lake Country Club and Sons of the American Revolution.

Organic Rubber Colors

A lecture on organic rubber colors was recently read by Dr. W. J. S. Naunton, of Imperial Chemical Industries, Ltd., before the Institution of the Rubber Industry in Manchester, England. The development of electro-deposition processes, Dr. Naunton said, has given rise to a demand for colored pigments of particle size comparable with that of the rubber particle in latex. Special methods of dispersion must be employed in the production of these colors, and their colloidal stability must be assured as far as possible by the use of carefully selected protective colloids. In addition to the production of straight-colored rubbers, the various conditions necessary for the successful production of jazz effects, metallic luster effects, and transparent rubbers were considered by Dr. Naunton.

The successful production of colored ebonite with a good cheesy cut is not easy, but excellent colored ebonites of modified properties can be obtained by recently patented processes. Dust mouldings and mixed ebonite-synthetic resins are interesting at the present time, but as far as formal dehydephenol resins are concerned their retarding action gives rise to difficulties. Organic colors serve a useful purpose in rubber technology, and their use has rapidly extended since the universal use of organic accelerators.

THE GENTLEMAN FROM MINCING LANE
reports current opinion in London's famous rubber market in every issue of THE RUBBER AGE

The London Letter

This Week The Gentleman Tries Watchful Waiting

London, 26th of March, 1928.

ALL eyes in Mincing Lane are turned towards Easter by reason of the Prime Minister's announcement that he hoped to be in a position to make some statement on the future of restriction before the House of Commons rises for the Easter recess. "Hope springs eternal" of course, but even the Prime Minister's hopes are not always realized. But uncertainty is such a pestilence and anyone afflicted with it is so keen to get rid of it, that they will pin their hopes to someone else's hopes—particularly if the someone else happens to be in authority. With the greatest eagerness, therefore, Englishmen interested in rubber, both growing and merchandising, are just existing between now and the beginning of the Easter holiday on April 6th. They expect to take a long Easter holiday week-end knowing the worst.

Although there are many who expect restriction to be terminated by the Government on the basis of the findings of the Committee of Civil Research, such a view is not held by everyone, by a wide margin. Instead, the majority expects the committee to make a conservative report on which the Government will not be able to take any drastic step at once. This feeling has been helping to keep rubber prices around 12 pence. This level is about half way between the 18-pence price which was ruling before the Premier's announcement and the 6-pence price to which rubber is expected to drop in case restriction should be suddenly removed.

Present prices have advanced from the low level of a few weeks ago (11d) largely because of the announcement in New York that the rubber pool had arranged with large New York banks for financing their holdings, and that, therefore, the pool would not be likely to dump any large share of its holdings on the market, a fear which has hung over the market for some time. It was thought that much of this rubber was held on margins and unless some longer term of financing was arranged, some of it would have to be sold.

ANOTHER factor which has pulled up prices from the low level of 11d has been the Prime Minister's announcement of a hoped-for statement. Then again the steady improvement in the statistical position has naturally had a positive effect. For seven successive weeks London stocks have declined until on March 17th they stood at 61,033 tons, a total which is actually below that of a year ago.

Messrs. Stanley F. Ward & Co., Ltd., in their March 16th letter have an interesting comment to make on the rubber growers' failure to take up offers at 19d-20d (38 to 40 cents) per pound at the end of the year at which time the rubber growers were particularly bullish:

> "During December and January we experienced a persistent trade enquiry at prices between 1/8¼d to 1/7d; day after day we submitted to first-hand sellers orders at these prices, and pointed out that they would be filled by Dutch interests if not accepted.
>
> "Who is responsible to British share-holders for refusing these substantial orders at about 8d per pound above today's value? We presume, according to an old maxim, The Government.
>
> "If a merchant misses his market, he is in his own and other people's estimation, lacking in intelligence; if it happens to a grower, he considers himself robbed and a victim of evil beyond control."

This same authority has held for some weeks that present-day prices "certainly represent an attractive level for increased consumption, the only true remedy for the whole rubber problem."

Committees representative of trade and growing associations here and in the East have put forward their views, which vary widely. There are those who would abolish restriction entirely and immediately, and others who would intensify its operation. Middle-ground committees would continue modified restriction with Dutch support. Mr. Eric Miller, one of the leaders of the British growing industry, has testified before the Committee of Civil Research of the Cabinet and before the Commerce Committee of the House of Commons.

THE Dutch evidently have been active. After appointing a committee of Dutch rubber growers at the Hague on March 1st, they have come to a number of decisions. This committee, it is reported, intends to visit London, go into the situation thoroughly here, and then proceed to New York to confer with the big consumers of rubber. Three weeks have elapsed since the appointment of this committee, and the announcement of these two visits is the first concrete evidence of action on their part.

Dutch opinion is still reported as leaning more strongly towards a selling pool than towards preference for any restrictive measures, but they seem to realize fully that any sales combine must have at least some measure of support from British growers in order to be effective.

The *Financial Times* comments on the proposed trip of the Dutch Committee as follows:

> "The decision of the Dutch Committee to visit London and New York indicates that the difficulties of the situation are fully recognized, and it would seem that there is a desire on the part of Holland to negotiate with foreign growers and consumers."

In view of the fact that Premier Baldwin will probably have made his announcement before this letter is seen by readers of THE RUBBER AGE, it is doubtful if I should give space to recounting the alternative proposals which have been suggested for altering or replacing the present restriction scheme. Many of them concern a reduction in the pivotal price, perhaps in a series of steps. It is realized,

however, that gradual relaxing of the restriction regulations will certainly create a waiting market. Some suggest that no removal of restriction should be attempted before 1929. By that time it is expected that world supplies will have been materially reduced.

There is an increasing protest on the part of efficient plantations, who are willing to take their chances in an unrestricted market, against being penalized for the protection of less efficient properties. This is a point which has come up in restriction discussions innumerable times in the past. It is probably an argument that cannot be permanently overlooked.

It is believed here that the Government would have liked to withhold its announcement for a while in order to influence the Dutch toward cooperation. If the Civil Research Committee recommends no change, the Dutch will almost surely relax to their old attitude. It looks as if the Dutch may have won again!

Yours faithfully,

THE GENTLEMAN FROM MINCING LANE.

Compounding Tuads With Lead

A SERIES of seven sheets covering hundreds of tests of Tuads compounded with lead, zinc oxide, litharge and stearic acid have recently been issued by the R. T. Vanderbilt Company. The tendency in recent years to shorten the time and lower the temperature of vulcanization has caused difficulty with some compounds as regards scorching and air curing. To overcome this condition it has been found that stearic acid and zinc oxides improves such compounds and that litharge or lead oleate will retard the curing and prevent scorching and air curing. Copies of the results of these tests are available on request to the above company.

10 YEARS AGO

Items Reprinted from April 10, 1918, issue of THE RUBBER AGE

MASON Tire & Rubber Company, Kent, O., announces that they will manufacture a line of solid truck tires . . . G. L. Henry resigns from the Stewart-Warner Speedometer Corporation to become vice-president of the Horse Shoe Tire Company, of New England . . . Branch offices to replace arrangements with jobbers is the new policy announced by the Lee Tire & Rubber Company . . . Harold S. French, Akron correspondent of THE RUBBER AGE, and now with the American forces in France, is commissioned a first lieutenant. . . George E. Hall, vice-president and general manager of the Boston Woven Hose & Rubber Company, is elected a director of the Beacon Trust Company, of Boston. . . The building of new plants or additions are announced by the Armstrong Rubber Company, Garfield, N. J., the Ardmore Akron Tire & Rubber Company, Ardmore, Okla., and the Barker Cushion Tire & Rubber Company, Chicago. . . Owing to insufficient space in the offices of the Rubber Association of America, 17 Battery Place, New York City, the Liberty Loan Committee of the Rubber Industry of Greater New York, has transferred its headquarters to the B. F. Goodrich Building. . . United States Rubber Company reports sales for the year 1917 totaling $176,159,694 with a net income after all charges but before payment of dividends of $15,340,576. . . W. A. Cluff, auditor of the Mason Tire & Rubber Company, is elected to the board of directors and is also made first assistant treasurer. . . The Army quartermaster has awarded contracts for 890,000 raincoats to various rubber goods manufacturers. . . First latex pale crepe is selling in New York at 60 cents per pound.

Measuring Tire Quality in the Laboratory

(*Continued from page 23*)

than those in which the angle of the cord varies considerably.

In the makeup of the cord, it is not possible by pulling samples from a tire to determine accurately the yarn size owing to the presence of rubber compound. The assumption is, however, owing to the fact that 23/5/3 and 13/3/3 are standard constructions that cords showing this count must have the corresponding yarn size. Sizes of yarn are determined by the number of hanks of 840 yards each to one pound. Thus the higher the yarn numbers, the finer the yarn. It is generally accepted in textile circles that coarser, heavier yarns cost less to make, and naturally a fabric made of 13s yarn twisted in three groups of three yarns each is less expensive construction than 23s yarn twisted in five groups of three strands each, although the cubic area occupied by each may be approximately the same. It would naturally follow, also, that the fabric with finer yarns more subdivided would permit greater rubber penetration and more flexibility.

Twist in yarn is measured by the number of turns per inch and, of course, can only be determined approximately in tearing down a finished tire. Higher twist yarns add to the strength, but decrease the stretch which is an important consideration in a tire. Cord break and stretch are therefore taken together and actual as well as bone dry. The breaks are determined by testings made on the Scott machine and the per cent of stretch by measurement on the same machine.

Adhesions Carefully Measured

The next consideration is adhesions which are very important determinants in measuring tire quality. They are obtained by cutting a section from the tire about an inch wide, starting the separation at the point or between the plies where the adhesion is to be measured and placing the two ends in the Scott testing machine. Good adhesions are necessary in a tire to prevent ply separation and to insure that the tire flexes as a unit. These are taken between sidewall and carcass, cushion and carcass, the plies, and breaker and tread.

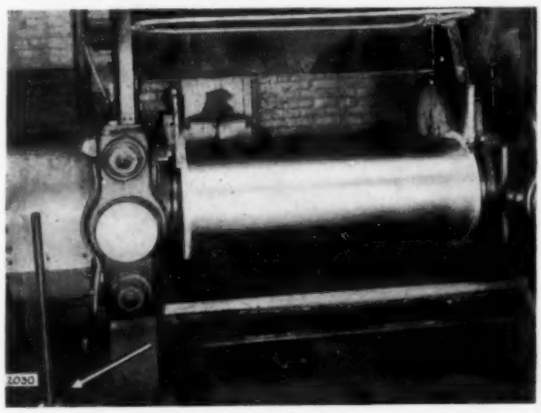
Tread hardness can be measured relatively by a durometer and is an important point since the advent of balloon tires as tread wear has become somewhat of a problem. Gravity reveals the presence of reclaimed rubber and fillers which may not be objectionable, although 60 pounds of smoked sheet and 25 pounds of carbon black has become fairly standard practice for first quality treads. Tensile strength of the tread proves the quality of the tread compound. First quality treads should test 3,000 to 4,000 pounds tensile.

Bead construction is appraised by measurement of the size of wire and the number of strands, counting the number of flippers, if any, with weight and width of both flippers and chafers.

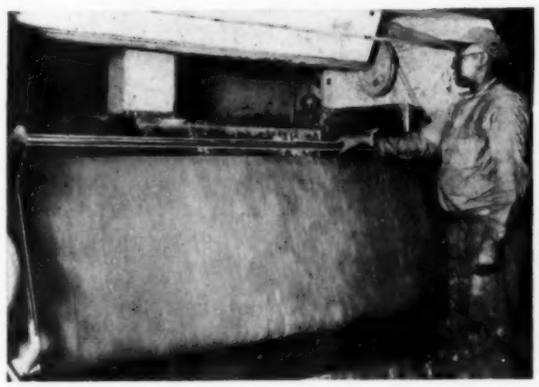
The accompanying table which gives the results of these tests shows that tires run fairly uniform in each class between the different makes with occasionally a tire of unusual merit showing up in the tests. Dissection of a competitor's products is now generally practiced throughout the rubber industry and competing firms exchange samples for this purpose. This practice has the advantage of showing how a competitor has worked out his problem independently of the other with the same object in view, namely, to produce a uniform product to sell at a price.

SAFETY KINKS *for the Rubber Factory*

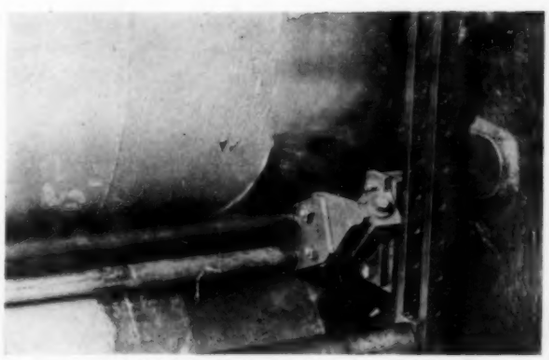
No. 2 of a Series, Showing How Various Manufacturers Are Protecting Their Workmen Against Serious Accidents. Presented by Courtesy of the National Safety Council and with the Cooperation of the Rubber Section thereof.



THIS photograph shows a fully guarded rubber mill in the Detroit plant of the United States Rubber Company. The safety trip at the top is an improved type in that it has no center bar. When the mill operator pulls or pushes either the front or rear bar of this trip, the mills rolls stop turning. The distance the rolls travel after the safety is tripped depends upon the efficiency of the brakes. A weekly inspection of brakes, both when mill is loaded and when it is empty, is recommended. The arrow in the left lower corner points to an additional safety device for the rubber mill. This is a holder for the heavy bar which is used to tighten and loosen the mill rolls. When the bar is placed in the holder instead of being leaned against the side of the mill, the hazard of its being knocked over on the mill operator's feet is eliminated.



THIS photograph, taken in the Firestone factory, shows an improved safety bar over the apron on an 84" mill. This bar, on which the mill man's hand is resting, is used as a stabilizer for the "hockey sticks" supporting the apron roll. Formerly this bar was supported by bearings of such a design that there was practically no clearance between the moving apron and the bar. This caused quite a few serious injuries due to the mill man's hand being caught between the moving apron and the bar. The simple remedy was to change the bearings so that there would be sufficient clearance between the apron and bar, as is seen in the photograph. No accidents have occurred since this installation.



BEFORE this two-bar safety guard was installed on calenders in the plant of the New York Belting and Packing Company several accidents occurred through operators or helpers getting caught in the bite or in the running side of the calender rolls. Fingers and even hands were lost in such accidents. The two-bar guard completely eliminates the hazard. When the guard is in position it is quite impossible for the operators to get caught for they must feed the rubber stock in between the two small bars which are set so as to allow only the rubber sheeting to pass through. This does not interfere with production in any way. This guard is simple in construction and can be easily attached or removed.

Can you use these ideas to make your plant a safer place in which to work? See other "Kinks" in succeeding issues

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Traxion Cord Tires
U. S. Twin Cushion Tires
U. S. Cushion Tires
U. S. High-Size Cushion Tires
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U. S. Royal Tubes
U. S. Grey Tubes
U. S. USCO Tubes
U. S. Nobby Tubes
U. S. Bicycle Tubes
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EDITORIAL COMMENT

Some Economic Laws Bebind the Recent Drop in Rubber

IF one should go back a brief few months and resurrect some of the market letters of the crude rubber dealers, he will be surprised to find that higher rubber prices were freely predicted for the first quarter of this year. Discounting the fact that many of these prophets were actuated in their predictions by a desire to sell, and also taking into account the fact that their positions were well hedged so that they were protected against loss, we venture to say that not many manufacturers were in a position to take advantage of cheap rubber as soon as they would like to have done.

Some will find consolation in the fact that Premier Baldwin's announcement which caused the break was unforeseen. But Premier Baldwin's announcement regarding restriction was not a primary cause for the break in rubber prices. Fundamentally, the structure behind the price of rubber rests on three economic laws, which are often lost sight of and apparently little understood. But they are always present, and they were the real cause of the drop in the price of rubber.

The first law clarifies the law of supply and demand by saying that "movements of prices set in motion forces which sooner or later stop the flow." How has this been demonstrated in rubber? The Stevenson scheme aimed at restriction of supply in Malaya and Ceylon. What happened? Immediately as the price rose, forces of stimulation to production to counteract the lack of supply were set in motion. Reclaimed rubber production in the United States in 1927 was 190,000 tons; only a few years ago it was hardly 50,000 tons. Rubber exports from non-restricted areas in the Middle East have doubled in the last five years. No sooner was one leak plugged in the restriction dike, than another one sprung afresh at a new point. Wrangles over standard production, ratings, unused coupons, smuggling, etc., all helped to wreck the scheme which had become an umbrella to an industry instead of a life-preserver as was originally intended. Meanwhile, slowly gathering momentum, we have new plantings by Americans, Europeans and natives appearing on the horizon. If we had not had high rubber prices would these developments have come about? Thus the era of high prices lays the foundations for future lower prices as the inexorable, time-worn cycle wends its unerring way despite artificial schemes to upset it.

The second economic law says that high raw material prices do not cause high prices of manufactured articles, but exactly the reverse. Only because the manufactured material can be sold at a high price does the raw material command a high price. In other words, prime facie evidence of a small crop of a commodity does not necessarily mean high prices. The demand must be present—the desire of the ultimate consumer for the product coupled with the money to pay for it—to cause a rise in price. We have a very good example of this on cotton during the last season. The supply was estimated in September at 12¾ million bales and cotton went to 23 cents a pound. In December when the final totals were available, the supply was practically the same, yet cotton went to 18 cents. Why? Simply on account of lack of demand. We, in following the rubber market, have been looking too much at the supply, and too little at the demand.

Here is where so many rubber prophets went wrong in the present cycle. They estimated demand for automobiles, tires, and rubber goods on predictions and hopes, not on facts. The facts are not hard to obtain if one goes after them in an unbiased manner. But they cannot be garnered from press reports and trade reviews which stress the optimistic side. For the price of a raw commodity will ultimately be determined by the demand of the consumer.

Lastly, we have an old economic law expressed in a new way, namely, the selling price of a commodity determines the cost. Ford first set the selling price on his car at the price which would yield the greatest maximum demand. Then he worked out the cost. Because one of the greatest cost reducing methods today is volume of production, the more produced, the less the cost of each.

When we talk about the cost of producing rubber, be it 15 cents, or 25 cents a pound, it is not the lowest possible cost by any means. Under the protection of restriction, plantations have not had the incentive to reduce costs. Once rubber producing is thrown open to competitive conditions, rapid strides will be made in cost reduction.

The RUBBER AGE

Published on the 10th and 25th of each month.
The Only Twice-a-Month Rubber Publication.

THE PALMERTON PUBLISHING CO., INC.
Publication Office, 1-3 Peace St., New Brunswick, N. J.
Editorial Office, 250 West 57th St., New York City
Telephones: Columbus 6430, 6431, 6432

THE RUBBER AGE is published on the 10th and 25th of each month by The Palmerton Publishing Co., Inc., a New York corporation. P. L. Palmerton, President; Earl D. Osborn, Vice-President and Secretary; T. J. Lawson, Treasurer. Publication Office, 1-3 Peace St., New Brunswick, N. J. Subscription rates: Domestic, $2.00 a year; Canada, $2.50; foreign, $3.00; single copies, 20c. Advertising rates on application.

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NEWS of the INDUSTRY

Financial—Business
Building Operations
Personals
New Products

GOODRICH CO. ELECTS J. D. TEW AS PRESIDENT

Sudden Resignation of Harry Hough Causes Further Shake-up in Executive Personnel—Graham Succeeds Tew as First Vice-President.

AT a special meeting of the board of directors of the B. F. Goodrich Company held on March 23 the resignation of Harry Hough as president of the company was accepted and J. D. Tew, first vice-president, was elected as his successor. T. G. Graham, works manager, was elected first vice-president to take the place made vacant by the elevation of Mr. Tew. Mr. Hough will continue to serve as a member of the board of directors. Existing vacancies in the board were filled at the same meeting by the election of T. B. Tomkinson, comptroller, and V. I. Montenyohl, treasurer.

The changes came as a distinct surprise to the rubber industry but were regarded as a continuation of important shifts which have taken place in the Goodrich management since the death of Bertram G. Work, late in 1927. It was stated officially that Mr. Hough resigned in order "to relieve himself of needless responsibility that he might conserve his health and enjoy his competence." Shortly after the action of the directors he announced that he would go on a vacation to Canada for a two months' fishing trip.

Fifth Goodrich President

James D. Tew is the fifth president of the company to assume office since the concern was started 58 years ago. He was born in Jamestown, N. Y., May 2, 1882, and was graduated from Harvard as a mining engineer in 1905. The following year he entered the employ of the Goodrich company as a shop worker. He left after two and a half years to go in the tire department of the Diamond Rubber Company, where he won promotion to the position of manager of the cord tire department in 1910. When the Diamond company was absorbed by Goodrich two years later, Mr. Tew was retained in that capacity and in 1918 was made superintendent of the tire division. In 1925 he became assistant manager of the works department and manager the following year. He was elected as first vice-president last September.

T. G. Graham is a comparatively young man, being in his early 40's and has been with the Goodrich organization only for the last three years. Previously he was with the Mason Tire & Rubber Company as head of the tire production division.

Since the election of David M. Goodrich as chairman of the board, Mr. Hough as president and Mr. Tew as first vice-president, on September 27 last, several other shifts have been made. S. M. Jett was elected secretary on September 29 to succeed F. C. Van Cleef who resigned, and T. B. Tomkinson was selected for the vacant controller's post on October 17. On January 3 of this year George M. Moffett, T. G. Graham and S. M. Jett were elected directors, and Joseph R. Swan, president of the Guaranty Company, was elected to the board on January 25.

JAMES D. TEW

U. S. RUBBER COMPANY TO MOVE LABORATORIES

The general laboratories of the United States Rubber Company will be moved shortly from New York City to Passaic, N. J. The company has acquired the old Klotz Throwing Company's five-story factory at the corner of South and Second Streets in Passaic for the purpose and expects to take occupancy of the plant within the current month.

The Klotz company's plant was built immediately after the World War at the time of the silk boom which collapsed, however, shortly after the building was completed and operations were abandoned and the plant dismantled. It has remained idle ever since.

RUMOR LINKS DU PONTS WITH RUBBER INDUSTRY

Expected to Seek Place on United States Rubber Company Directorate —Reported to be Also Interested in Seat on Rubber Exchange.

A RUMOR has been persistent in financial circles during the last fortnight to the effect that the duPont interests are expected to seek representation on the board of directors of the United States Rubber Company at the meeting of the stockholders on April 17. Another rumor circulated in this connection links the name of the duPont organization with the recent purchase of a seat on the Rubber Exchange.

Changes in the directorate of the United States Rubber Company have been talked of for some time and recent dissatisfaction with the last annual report by certain stockholders has given rise to a revival of the rumor. James H. McIntosh of the law firm of Alexander and Green, New York City, is understood to have written a letter to certain directors of the United States Rubber Company in criticism of the present management and there have been unconfirmed reports in Wall Street that Mr. McIntosh was expressing the views of the duPonts. While it is not generally believed that the duPonts are out of sympathy with the management of the rubber company, it is thought that they may insist on some changes in policy.

Suggested as Director

In this connection, the name of W. S. Carpenter, Jr., vice-president of E. I. duPont de Nemours & Company, has been suggested as the probable representative of the duPont interests to seek a place on the United States Rubber Company board or at least to take some executive position with the company.

The present holdings of the duPonts, which are said to approximate 250,000 shares, represent the investment of individual members of the family and not the E. I. duPont de Nemours & Company, or at least such was the case in December when a formal statement was issued.

The rumor that the duPonts have also purchased a seat on the Rubber Exchange is deemed probable in view of the increased activities of the rubber pool which includes several companies in which the duPonts have large interests, notably General Motors Corporation and United States Rubber Company. The move is seen also as a logical step in the broadening interests of the duPont organization and the fact that the company is a heavy purchaser of crude rubber for the manufacture of its rubber coated automobile top materials which are fabricated at Fairfield, Conn.

SCRAP RUBBER DEALERS APPROVE SPECIFICATIONS

At the meeting of the scrap rubber division of the National Association of Waste Material Dealers, held at the Hotel Astor, New York City, March 20, David Feinburg was re-elected chairman for the ensuing year.

The principal business of the meeting was the consideration of some changes in the specifications for grades of scrap rubber which had been suggested by the rubber reclaimers division of the Rubber Association of America, following a recent conference between committees chosen respectively by the scrap rubber dealers and the reclaimers.

Although changes suggested were comparatively slight, it was pointed out by some members of the scrap rubber division during the discussion that they involved more careful sorting of scrap rubber and that such procedure would serve to increase final costs of reclaimed. Members of the scrap rubber committee who had met in conference with the reclaimers, however, stated that the reclaimers were aware of this fact, but that reclaiming processes had been so improved that it is now necessary to have a more carefully graded raw material than formerly.

Suggested specifications were accepted without change by the scrap rubber dealers, and a vote of thanks to the reclaimers was passed in recognition of their co-operation in the matter.

RUBBER FACTORY AND EQUIPMENT IS SOLD

The factory building and equipment of the defunct Studebaker-Wulff Rubber Company, of Marion, O., has been recently purchased by Herbert Andress, of Cleveland, who expects to hold the property as an investment. Mr. Andress acquired the property from the Equipment Company, Inc., of Trenton, N. J., who had previously purchased it in 1926 from the trustee in bankruptcy for the Studebaker-Wulff concern. Mr. Andress in the head of the Cleveland Equipment Engineering Company, which specializes in the marketing of rubber plant equipment and machinery.

Mr. Andress has stated that the equipment will be retained in the plant building for the present to provide time for negotiations with parties who might be interested in the purchase of the property as a whole for rubber manufacture. He further states that he and his associates are in a position to assist in the financing of any industrial enterprise which may take over the property. If no such interested party is procurable the plant will be dismantled and the machinery disposed of separately.

A. J. Stephens Rubber Co.

The A. J. Stephens Rubber Company, Kansas City, Mo., which has been in the hands of receivers for some time, is reported to have materially improved its financial position since the first of the year in spite of slight losses reported in the operating balance sheets for January and February. The chief difficulty has been to accumulate sufficient working capital and creditors are being asked to defer for ninety days their demands for the 10 per cent cash offered in the composition settlement some time ago, so as to further assist the company to recuperate. A. J. Stephens and Mrs. Nellie Tregoe are no longer connected with the present operations of the company and R. A. Walker has been designated as manager.

NEW LITCHFIELD TROPHY FOR BALLOON RACES

P. W. Litchfield, president of the Goodyear Tire & Rubber Company, has offered a new trophy as the prize for the national balloon races to be held May 30th.

The first Litchfield trophy was won for three consecutive times by Ward Van Orman and W. W. Morton, Goodyear balloonists and was presented by them to the Akron chapter of the American Aeronautical Association. It is now on display in the lobby of municipal building at Akron.

The New 1928 Trophy

The new trophy will be offered under the same rules as the first. To be held permanently it must be won three times in succession by balloonists representing a chapter of the aeronautical association or by army or navy balloonists. The trophy stands 28 inches high and is of silver mounted on a marble base.

Imports of golf balls during February, 1928, totaled 144,000 balls valued at $54,487 or a unit value of 37.8 cents per ball, according to the Department of Commerce.

RUBBER GOODS GIVEN LOWER FREIGHT RATES

Member companies of the Rubber Association of America, Inc., have recently been notified of ten changes in freight rates and classifications affecting rubbed goods. These represent changes for which approval has been secured in the last two years through the work of the Association's traffic committee. Publication was withheld, however, due to technical difficulties concerning the long-and-short-haul clause of the Interstate Commerce Act. A recent enabling order brings the new rates into effect on April 20, 1928.

The commodities affected are belting, rubber and canvas footwear, latex, sheet rubber for tire repair, tire treads, reclaimed rubber, tiling, pneumatic tires, solid tires and rubber tiring. The carload minimum weight on rubber and canvas footwear has been reduced from 24,000 lbs. per car to 20,000 lbs. The rates on solid mounted tires in carloads has been reduced in all classification territories from third class to fourth class. Several of the other commodities mentioned have been reduced in the Southern Classification territory. A carload rating of fifth class is established on reclaimed rubber, minimum weight 40,000 lbs., to points in Southern Classification territory which is a reduction from second class. Greater latitude in the kind of containers permitted is granted in connection with some of the other goods.

Tire Thefts Decrease

Thefts of tires from automobiles dropped off 60 per cent in the last 15 months of low tire prices, according to information reaching the General Tire and Rubber Company from a score of insurance companies handling automobile business.

It was the belief of insurance officials that the low selling price of tires in 1927 cut the thieves' margin of "profit" to a point where the operation was unprofitable. Twice as many thefts of spares were reported as those in which thieves removed tires from wheels.

Junior Rubber Technologist

The United States Civil Service Commission announces that an open competitive examination will be held shortly for junior rubber technologists. Applications must be filed with the Commission not later than April 28. The examination is to fill vacancies in the Bureau of Standards, Washington, D. C. The entrance salary is $1,860 per annum. Competitors will be rated on general chemistry, elementary physics and mathematics up to calculus and practical questions on rubber technology.

The Cambridge Rubber Company, rubber footwear manufacturers of Cambridge, Mass., have had the roof of their factory marked with the name "CAMBRIDGE" in huge letters as a guide to aviators flying to the Boston airport. The signs is said to be the first of its kind provided in Greater Boston.

GOODYEAR CO. ELECTS WILSON VICE-PRESIDENT

The Goodyear Tire and Rubber Company has announced the election of Robert S. Wilson, sales manager of the organization, as a vice-president of the company to succeed Frank K. Espenhain who recently resigned to enter business for himself.

Mr. Wilson, who is only 38 and one of the youngest executives in the rubber industry, has been sales manager of Goodyear since January 1 when he was appointed to succeed L. C. Rockhill who resigned to assume the post of sales manager of the Miller Rubber Company. He has been in the employ of his company since 1912 and has risen through many successive positions of responsibility. He is a native of Wooster, O., and a graduate of Princeton of the class of '10.

Goodyear directors also re-elected other company officials including P. W. Litchfield, president, and C. F. Stone, C. C. Slusser and Charles A. Stillman as vice-presidents.

STAR RUBBER COMPANY PLANS TO CLOSE PLANT

The Star Rubber Company, Akron, O., closed its plant on April 1 for an indefinite period. According to a statement from Morris E. Mason, president of the company, a reorganization of the concern has been under consideration for some time and if it is effected in the near future the plant may be reopened. The move is understood to be only temporary and the shutdown will continue only so long as will be necessary to readjust the company's organization.

The plant was closed for a month last year during a period of reorganization, shortly after Mr. Mason assumed the presidency. About 150 employees will be affected. The company was incorporated in 1907 and is one of the oldest of the rubber manufacturing plants in Akron.

At the annual meeting of the Fisk Rubber Company, March 30, C. F. Mills of Boston and R. B. McGraw, treasurer of the company, were elected to the board of directors. The other members of the old board were re-elected.

MOVING PICTURES USED TO INPIRE DEALERS

The Goodyear Tire and Rubber Company will use motion pictures this year to drive home the cardinal points of its sales policy in the annual meetings held throughout the country. A new four-reel picture called "Ten Points to Progress" has just been completed for the company by Visugraphic Pictures, Inc., New York City. Over 20,000 Goodyear dealers from Maine to California will have the opportunity to see this picture at the 1928 series of meetings.

Use of motion pictures is an innovation in dealers' meetings held by the Goodyear company. In previous years the company has sent its leading sales executives to address such meetings.

"Ten Points to Progress' visualizes in an interesting and succinct form the sales program for 1928 with various suggestions for making it more effective. In order that the dealer meetings may start simultaneously prints of the picture have been made for each of the company's fifty branch territories throughout the United States. The branch managers conducting the meetings will have an opportunity to emphasize the points shown in the picture during the intervals required to change the reels.

LANCASTER TIRE CO. IN BANKRUPTCY SUIT

The Lancaster Tire & Rubber Company, Columbus, O., has filed a voluntary petition in bankruptcy in the United States court in Columbus. Liabilities are listed at $1,223,-559, while assets including real estate and machinery are listed at $1,438,008. Un secured claims total $892,131, according to the petition. The suit involves property in Hamilton, Franklin and Fairfield counties in Ohio and in Denver, Colo. The petition was signed by E. E. Lerch, president of the company.

Another Survey Started

It has been announced from London that the Commercial Committee of the House of Commons is planning to institute another inquiry into the present efficacy of the Stevenson restriction scheme. This comes as a surprise to rubber circles inasmuch as there are already two inquiries into the subject afoot—a committee of the Rubber Growers' Association which started their investigations early in January and the full inquiry now completed by the Civil Research Committee of the Cabinet.

The Republic Rubber Company, Youngstown, O., is running at 80 per cent capacity and the outlook for the year is highly favorable, according to a recent statement by J. H. Connors, president of the company. The truck tire situation is especially encouraging.

NEW YORK RUBBER GROUP TO HOLD SECOND MEETING

The second meeting of the New York Group of the Rubber Division, American Chemical Society, will be held on the evening of April 25, at the Town Hall Club, 123 West 43rd Street, New York City. The meeting, which will be preceded by a dinner, will be addressed by Dr. David Spence, vice-president of the Intercontinental Rubber Company, who will speak on "Guayule Rubber."

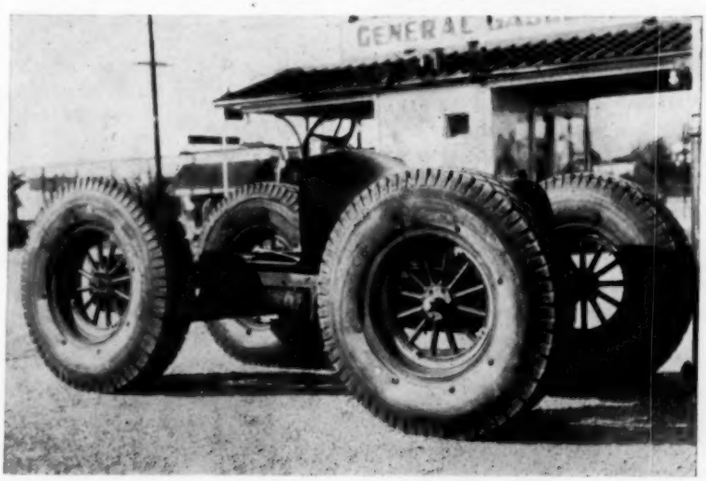
Dr. Spence's talk will be supplemented by an exhibition of moving pictures showing the complete operations of gathering and extracting the rubber from the guayule shrub in Mexico, as at present carried out. The pictures will also show in detail the intensive development of the shrub from seed, the gathering and sowing of same, the planting and cultivation of the seedlings and the entire agricultural development as now carried out in California. In addition to the moving pictures there will be a short account of the recent scientific work on the shrub and on the resulting rubber product.

The affair will start at 6:30 P. M. The price of the dinner will be $2.00. Those wishing to attend are urged to send in their reservations, at as early a date as possible, to D. F. Cranor, secretary and treasurer of the New York Rubber Group, care of Binney & Smith Company, 41 East 42nd Street, New York City.

Unemployed Raid Pencil Co.

The Eagle Pencil Company, New York City, was the scene of a near riot recently when a crowd of unemployed stormed the company's plant demanding work. The company had not advertised for additional help and has been fully staffed for some time. The crowd was dispersed by the police after a few arrests had been made. The company is a manufacturer of rubber pencil tips and erasers in addition to their extensive line of pencils.

Oversize Tires Are Good Advertisement



This car is used by a Los Angeles tire dealer who finds it useful in attracting attention to his business

PACIFIC GOODRICH CO. PRODUCES FIRST TIRE

Factory Goes Into Production Just Seven Months After First Ground Was Broken—Formal Opening With Ceremonies Scheduled for May 2.

THE new Los Angeles plant of the B. F. Goodrich Company has been completed and manufacturing operations were begun on March 16 when the first Goodrich "Silvertown Cord" tire was produced with appropriate ceremonies.

The first tire produced by the Pacific Goodrich Rubber Company commemorated an industrial engineering accomplishment that has seldom been paralleled by American business enterprise. It marked the completion of a factory over a quarter mile long and 400 feet wide, with every detail and process completely functioning in the record time of seven months.

The new Goodrich factory produced its first tire seven months to the day after the first ground was broken for its foundation.

The official opening of the plant will be held on May 2, when its production machinery will be in full swing. A special radio program put on over a network of eight Pacific Coast broadcasting stations will also be a feature of the opening. This program will fit in with a similar dedicatory program to be broadcast over the red network from WEAF and 30 other eastern and middle western stations.

Safety Engineers to Meet

The 17th annual Safety Congress will be held in New York City, October 1 to 5. All meetings of the Rubber Section will be held in the Hotel McAlpin. Harvey Willson of the Rubber Association of America, Inc., is chairman of the program committee. R. C. Salisbury of the Federal Division of the Fisk Rubber Company is chairman of the Section. The executive committee of the Section will meet in New York City in April at which time it will give consideration to an accident prevention contest for rubber factories. The plans for this contest are in charge of E. W. Beck of the United States Rubber Company and H. T. Martin of the Fisk Rubber Company.

BILL PERMITTING WOMEN TO WORK NIGHTS OFFERED

The Committee on Labor and Industries of the Massachusetts Legislature has recently conducted hearings on a proposed labor bill which will permit the employment of women in textile mills after six p. m. The bill has had the support of a number of the rubber companies operating in New England, particularly those companies also operating fabric mills. The present law has hampered production in a number of instances by making it impractical to continue night shifts.

The bill as proposed will amend the present labor laws of the state to permit women over twenty-one years of age to be employed in manufacturing between the hours of six in the morning and twelve at night. This extension in time would allow the operation of two eight-hour shifts. The proposal is not intended to lengthen the work-week more than the present 48 hours as prescribed by law but is merely a simple solution whereby two shifts may be employed when occasion warrants.

Dr. Robert S. Quimby, of the Hood Rubber Company, was one of the advocates of the bill and appeared before the legislative committee, as did Charles R. Gow, one of the directors of the Hood Rubber Company, and J. William Fellows, of the Boston Woven Hose & Rubber Company.

FREIGHT RATES ON CARBON BLACK ARE UNCHANGED

The protest of the Rubber Association of America, Inc., to the Interstate Commerce Commission against the proposal of the southwestern railway lines to increase the freight rate on carbon black to all eastern territory, including Akron, has been favorably acted upon by the Commission with the result that such rates will not be immediately changed. However, the Commission accords the railways the right to revise such rates after further investigation on or before December 10, 1928, but any increase which would be permitted will be on a much lower basis than that formerly proposed.

The proposed increase from Louisiana and Texas carbon black plants to Akron was bebetween 50 and 60 per cent. The permitted increase is thought likely not to exceed 15 per cent. This would mean an approximate saving to the rubber industry of between $300,000 and $400,000.

Fewer Brake Lining Sizes

The principal producers of brake lining, including several companies also well-known for their rubber manufacturing activities, have agreed on a program for a great reduction in the number of sizes of brake lining which will be made. Heretofore, more than 100 widths and thicknesses of brake lining have been made and used. The new program calls for only 37 different linings. This standardization was accomplished with the cooperation of the Department of Commerce. No less than 76 commodities have been similarly standardized through the Department's work.

Among the men who were active in working out the brake lining simplification program were Joseph O. Baur and C. A. Schall, Thermoid Rubber Co., Trenton; and K. W. Harriss, Manhattan Rubber Manufacturing Co., Passaic.

Gibraltar Has Fire

The interior of the factory of the Gibraltar Rubber Company, West New York, N. J., was destroyed by fire on March 21 with a loss estimated at $85,000. Charles Cholerton, president of the company, stated that the company's supply of crude rubber was destroyed and the plant machinery and equipment was severely damaged.

The Boston Rubber Shoe Company's plant at Melrose, Mass., was closed during the last half of March in order to permit of a change over in power operation from steam to electric motor power. The concern is one of the subsidiaries of the United States Rubber Company.

RAINCOAT MANUFACTURERS FORM COOPERATIVE PLAN

A plan for cooperative effort to stabilize the raincoat manufacturing industry was the result of a recent joint meeting in Boston, Mass., of the Massachusetts Raincoat Manufacturers' Association, the Associated Raincoat Manufacturers of New York and the proofing division of the Rubber Association of America.

The plans formulated at the meeting contemplate the regulation of the materials which go into the manufacture of raincoats and of the manner in which they are made and applied. An intensive advertising campaign and the creation of a styling department are also planned.

A special meeting of the rubberizers will be held at an early date to consider the programs proposed and this will be followed by another meeting of all the divisions.

Representatives of the three groups were as follows: John Lavelle, of the Meade Rubber Company, Stoughton, Mass., and H. J. Haon, of the E. I. du Pont de Nemours and Company, were respectively chairman and vice-chairman of the rubberizers; Ben Fligel and Moe Sherman, of New York, acted in similar capacity for the associated manufacturers of New York, and Jack Aronson, of the Aronson Coat Company, of Boston, and Fred Monosson, of the Cosmopolitan Manufacturing Company, of Cambridge, Mass., were chairman and vice-chairman for the Massachusetts association.

Goodrich to Push Heels

A vigorous advertising campaign "to make Goodrich heels as famous as Zippers," has been announced by the B. F. Goodrich Company. In an advance notice to the trade the company outlines the plan of campaign which will include double page spreads in color in the "Saturday Evening Post," and "Liberty" magazines. A special sales force will supplement the advertising campaign in a sales drive among the retail trade and every Zipper salesman will also cooperate in the movement.

Taxes Claimed From U. S. Rubber

The Federal government has recently brought claims totaling $6,193,806 against the United States Rubber Company. Deficiency of income and profits taxes for the calendar year 1918 is alleged. The company has appealed to the Board of Tax Appeals claiming that the revenue bureau failed to allow as deductions the losses sustained in 1918 on account of the dissolution of various corporations whose stocks were owned by the United States Rubber Company.

Firestone Gets Richmond Site

The Firestone Tire & Rubber Company will shortly begin the erection of a building at the corner of Broad and Lombardy streets, Richmond, Va., according to an announcement made by L. E. Keppel, branch manager of the Firestone company in that territory. The cost of the building will approximate $250,000. The announcement confirms a rumor which has been persistent since Harvey S. Firestone's recent visit to Richmond.

Names in the News

FRANK K. ESPENHAIN, first vice-president of the Goodyear Tire & Rubber Company since 1926, has resigned and proposes to enter business for himself in New York City, the nature of which has not yet been disclosed. He will spend a few weeks in Florida in the meantime on a vacation trip.

O. C. OSMAN, president of the Marathon Rubber Company, Akron, was to have boarded a train in Cleveland a few weeks ago but work in Akron detained him. Mr. Osman ordered a plane made ready at the Robbins Airport and proceded by air to Toledo where the New York Central had a taxi-cab waiting to convey him to the station. He caught his train.

L. J. EVANS, a member of the sales force of the London branch of the Firestone Tire & Rubber Company, visited Akron during January and February on his first trip to America. He returned to his post late in March.

H. M. HOOPER, an employee of the reclaiming plant of the Goodyear Tire & Rubber Company, Akron, has won the prize award of $500 for the best suggestion of the year. The nature of the suggestion was not made known by the company.

D. RENS and H. UKKERMAN, directors of the firm of Fuchs & Rens, Ltd., Firestone distributors in the Dutch East Indies, were recent visitors at the Firestone Akron plant.

D. W. SANFORD, branch manager at Portland, Oregon, for the Goodyear Tire & Rubber Company since 1922, has been transferred to the Los Angeles branch of the company as head of that sales office. This is the largest sales branch on the west coast and the move is in the nature of a well-earned promotion for Mr. Sanford.

WILLIAM R. MURPHY, superintendent of labor of the Firestone Tire & Rubber Company, Akron, has celebrated the twentieth anniversary of his connection with his company. He was one of Firestone's first cost clerks.

C. H. HALLIGAN, manager of the cost accounting department of the rubber Association of America, Inc., has recently been on a protracted trip among middle-western rubber companies in the interest of the adoption of uniform cost accounting in which Mr. Halligan's committee is interesting itself.

L. A. MATTHEWS, who has been handling the Hubmark line of the United States Rubber Company for many years in Minnesota and is one of the best known footwear salesman in the country, has retired from active selling due to an injury to his leg.

GEORGE BROCKNEY, of the sales force of the Summit Rubber Company, Akron, has returned to his territory in central Ohio, after a vacation since the first of the year.

CLINTON H. SCHULTZ recently left the Seiberling Rubber Company, Akron, to assume the duties of chief chemist of the Holtite Manufacturing Company.

J. H. CRARY and E. J. TESDELL, sales executives of the Gates Rubber Company, left Denver recently on an extended tour which will cover the country from coast to coast. They will hold sales conferences with district managers and field men, besides calling on as many jobbers as their schedule will permit.

CHARLES H. ROPER, formerly of the Hood Rubber Company, has joined the staff of the Gutta Percha and Rubber Company, of Toronto, Canada, as factory manager.

WILLIAM STEPHENS, general superintendent of the Goodyear Tire & Rubber Company, Akron, will leave for Australia on April 1 where he will go over some of the plant problems with WILLIAM URQUHART, the superintendent of the new Australian Goodyear factory at Sydney. H. T. GILLEN will be acting superintendent at Akron during Mr. Stephen's absence.

DAVID LAWRENCE, the well known political writer and editor of *The United States Daily*, spoke on the rubber situation in his radio talk on the evening of April 1.

G. H. HILBISH, who has been associated at various times with the sales forces of Goodyear, Goodrich and Star, has joined the Lambert Tire & Rubber Company. His experience in the rubber industry covers a period of over twenty-one years.

FREDERICK J. MAYWALD, well-known consulting chemist and well known in rubber manufacturing circles, will move his laboratory to Carlstadt, N. J., from his present location at Belleville, N. J.

E. B. SMITH, chief chemist of the National Turpentine Products Company, Jacksonville, Fla., has recently published the results of his studies of the technical advantages of retort pine tar as a rubber compounding ingredient.

CURT USCHMANN, chief of mechanical trades of the Firestone Tire & Rubber Company, Akron, had been transferred to Los Angeles, where he will be master mechanic.

J. H. HEIST, formerly director of sales of the Wheary Trunk Company, has joined the Dayton Rubber Manufacturing Company's organization and will be district manager of the Chicago territory.

COL. PAUL R. HANSON, manager of the Montreal branch of the Dunlop Tire & Rubber Company, Ltd., was recently elected president of the Royal Automobile Club of Canada, Montreal.

C. H. CARLISLE, president and managing director of the Goodyear Tire & Rubber Company of Canada, Ltd., recently tendered a dinner to D. J. MCCARTHY, assistant general sales manager of the company, and J. G. LANE, treasurer and assistant to the president, in honor of their fifteen years of loyal service to the company.

Obituaries

James B. Ford

James B. Ford, vice-president of the United States Rubber Company, died of pneumonia at his home in the Hotel Mansfield, New York City, on March 29, at the age of 81. Mr. Ford was widely known in the financial world and held directorships in a large number of corporations. He was also one of the most noted yachting figures in the country and was Commodore of the Larchmont Yacht Club.

Mr. Ford was connected with the rubber industry since 1868 when he went to work for his father in the New Jersey Rubber Shoe Company. In 1870 he became secretary and later president of the concern, which post he occupied until the absorption of the company by the United States Rubber Company in 1892, at which time he was elected a vice-president of the new organization. He was active in the affairs of the United States Rubber Company up to the time of his death.

T. A. Forsyth

Thomas Alexander Forsyth, one of the founders of the Boston Belting Company, died March 28 in his sleep in his room at the Hotel Touraine, Boston, where he made his home for many years. He had been in ill health for some time.

Mr. Forsyth together with his brothers developed the Boston Belting Company, one of the pioneer concerns in this country for combining rubber and fabric, and was the president and general manager of the company up to the time of his retirement in 1917. He was particularly noted around Boston for his philanthropies and in conjunction with his brother, John Forsyth, founded the Forsyth Dental Infirmary.

George S. Andrus

George S. Andrus, for many year's associated with the rubber industry, died at Akron on March 9. He was at one time manager of the Chicago Rubber Clothing Company, of Racine, Wis., and in 1897 organized the LaCrosse Rubber Company, at LaCrosse, Wis. In 1903 he took charge of the Apsley Rubber Company, Hudson, Mass. A few years later he joined the old Diamond Rubber Company and later the B. F. Goodrich Company, as manager of the shoe and clothing department. He left the rubber industry in 1916 to engage in the manufacture of chemicals.

Timely Financial News

AJAX RUBBER COMPANY SHOWS HEAVY LOSSES

Position of Company Is Reported Sound However and Is Expected to Improve Under Consolidation Plan With McClaren Rubber Co.—Owes No Money.

THE final report of the Ajax Rubber Company, Inc., and its subsidiaries for the year ended December 31, 1927, shows a net loss of $1,990,698. The report for 1926 carried a loss of $292,808. The report for the last year shows that $500,000 has been set up out of profit and loss surplus as a reserve for fluctuations in the crude rubber market for 1928.

In spite of the loss as recorded, J. B. Weston, chairman of the board of directors, reports the company's financial position as improved. His statement in part was as follows:

"The company owes no money nor has it any other current notes payable, which is the first time in years that it has not been necessary to borrow substantially from the banks prior to this period of the year. This result is partly attributable to the ability of the company to market 200,000 shares of its authorized unsold capital stock, which supplied funds enabling the foregoing accomplishment."

The ratio of current assets to current liabilities was reported as 5.80 to 1, and cash on hand as $1,278,818, against $331,084 at the close of 1926.

Under the recent consolidation plan with the McClaren Rubber Company and with H. L. McClaren as its active head, the company is expected to show considerable improvement during the current year.

SWINEHART RUBBER CO. CHANGES CAPITAL BASIS

A reorganization of the capital structure of the Swinehart Tire and Rubber Company, Akron, O., was effected at the recent annual meeting of stockholders. The financial report for the year 1927 showed a net profit before depreciation of $192,000. The present business outlook for the company is reported to be encouraging and a new building with greater productive capacity is contemplated.

The new refinancing plan of the company calls for a change in the capital stock to a no par value basis. The issuance of 30,000 shares of class A and 50,000 shares of class B, no par common stock, was authorized to provide new capital. Company officials stated that a banking firm had already agreed to underwrite the entire class A issue. The 8,000 shares of common stock at $100 par now outstanding will be changed to class B stock at a nominal value of $10 per share.

The stockholders also re-elected the present directors which include William M. Weldon, W. H. Marlatt, Pierce A. Snyder, J. E. Foster, Charles McCuskey, Charles O. Baughman, W. A. Walsh, and Thomas F. Walsh.

The directors re-elected T. F. Walsh president; William Weldon, vice-president; and C. O .Baughman, secretary and treasurer.

MOHAWK RUBBER COMPANY SECURES $800,000 LOAN

The refinancing of the Mohawk Rubber Company has been completed with the announcement that a loan in the sum of $800,000 has been granted the company by the Union Trust Company of Chicago. A deed of trust for the amount has been filed with the state authorities, signifying the completion of the transactions.

The loan is the result of refinancing plans begun some time ago when the directors of the Mohawk Rubber Company approved the issuance of $800,000 gold debentures, secured by first mortgage notes and the increase of common stock from 25,000 to 35,000 shares. The loan was negotiated at a favorable rate of six per cent for a five-year period, and was made only after a thorough study had been conducted of the financial position of the Mohawk company.

Proceeds of the loan together with proceeds from the sale of the extra common stock voted by the directors will liquidate all the funded indebtedness of the company and will supply sufficient working capital to expand operations.

The directors recently voted to pay all back accrued dividends on preferred stock. The company earned last year a net profit of $631,171 or equivalent to approximately $23 per share on the common stock. Net sales for the year of 1927 totaled $5,702,372 and a substantial increase in unit sales over the previous year was also reported.

Late Stock Prices

	Last Price		—1928—	
	Apr. 3	Mar. 19	High	Low
Ajax	11⅝	10¾	14¼	9¾
Firestone	185	185	232	170
do. 6% pfd.	112	110	112	109
do. 7% pfd.	109	108½	111½	108
Fisk	16¼	15⅝	17¾	14⅜
do. 1st pfd.	87½	93½	98	84
General	166	165	190	165
do. pfd.	101½	102	111	100
Goodrich	85	84½	99⅜	80
do. pfd.	115	110	115	109½
Goodyear Com.	56⅜	56½	72½	57½
do. pr. pfd.	95⅞	96½	99½	96
do. pfd.	—	—	120	100
Hood	37	36	43	42
India	20	20	23½	16
Intercontinental	16¼	16¼	21⅜	4⅜
Kelly Springfield	24⅝	21¼	27⅜	15
do. 1st pfd.	74	74¾	78	75
do. 8% pfd.	—	70	84	55¼
Lee	19¾	19	22⅝	17¼
Miller	24⅝	23	27½	21
do. pfd.	93	92	97½	90
Mohawk	53½	35	58	20
do. pfd.	73	75	85	55
Seiberling	41	36	42½	35
do. pfd.	103	103½	105	102
U. S. Rubber	51⅛	46¼	63¼	40
do. pfd.	92¾	91½	109⅞	82½
U. S. Rubber Reclaiming Com.	—	—	16½	14½

RUBBER COMPANY STOCKS QUIET IN ERRATIC MARKET

Although the general market for stock securities has been extremely bullish over the past fortnight the upward tendency in prices has not hit the rubber shares. In no single instance has any spectacular gain been made in individual stocks such as has occurred in the case of General Motors, Radio Corporation and others. In fact, the trading in rubber shares has been very quiet and while quotations have been steady and showed none of the erratic movement common to the recent market, the general bullish tone of the market in general has probably done much to maintain the rubber issues at their present comparatively high levels.

With the annual statements of profits and sales for 1927 now all in, the rubber share market has settled down to a period of quiet or mild speculation on next year's values. So little has developed ,however, at this early date on which to base any prognostications that even a speculative interest of any proportions is completely absent. All such interest is apparently awaiting further important news along the line of what Great Britain is going to do as regards her restriction policy and as more nearly affecting the home market, how far the new automobile models will go in the matter of sales for the current year.

The preferred issues of Firestone and Goodrich touched new highs for the year and the new refinancing operations of Mohawk sent that stock to a new peak also during the fortnight. Of the other issues, the list remains practically unchanged and steady.

MURRAY RUBBER CO. COMPLETES REFINANCING

The Murray Rubber Company announces that plans have been completed whereby C. Edward Murray, Jr., president of the corporation, and his brother-in-law, Thomas Morrison, Jr., have acquired all the common stock and 70 per cent of the preferred stock of the company. They have also placed additional funds in the treasury to finance the production of the new 24,000-mile "De Luxe" tires recently placed on the market by the company and also the Murray "one-year guarantee" tire. The company is reported to be considerably behind in production of the "De Luxe" tires. Mr. Morrison, who has been made vice-president of the Murray Company, has been connected with the concern for several years. He is the son of Thomas Morrison, of Pittsburgh, Pa., a director of the United States Steel Corporation.

The Bedford Tire and Rubber Company, Bedford, Va., manufacturers of the "Blue Ridge" cord tires, have established a branch distributing office at Portsmouth, Va.

Rubber Goods and Specialties

Shock Insulated Bus Seat

A motor coach seat which is shock insulated by means of rubber parts has been developed by the International Motor Company of New York. The seat consists mainly of three units; the seat frame and back, the rubber shock insulators and the supporting plate and pedestals.

The main feature of the seat is the shock insulation which consists of three or four

Rubber Hinge is Seen at "E" While One of the Rubber Insulators is Indicated by "H"

rubber insulators in the rear, fastened to the seat frame and resting on the supporting plate. In the front there is a rubber hinge between the seat frame and the plate. This arrangement is said to absorb all small shocks and vibrations and to provide an unusual flexibility or slight rocking chair motion. Since the back of the seat can recline slightly by virtue of the flexibility, the comfort of the passenger is greatly increased. The backs of the seats are made of sheet aluminum, pressed into form-fitting curves, which gives the seat a most restful quality while greatly reducing its weight.

Rubber Tired Roller Skates

A distinct new feature in the nature of heavy rubber-tired wheels is being offered this year in connection with the manufacturing of roller skates and has been adopted by practically all manufacturers in this line. The accompanying illustration shows a cross section of the rubber tired roller used by the Kohler Die & Specialty Company, DeKalb, Illinois, manufacturers of the "Silent Speed King" line of roller skates. The noise and clatter of steel wheels are eliminated by the more comfortable and speedy rubber tires. The wheels continue to be set in ball bearings.

Sectional View of the Speed-King Rubber-Tired Roller

"Sure-Grip" Jar Wrench

A rubber hand grip which quickly and easily opens or seals jars, bottles, cans or screw-top containers of any kind has been developed by the Kristee Manufacturing Company, Akron, O. The "wrench" is held in the hand and fits over the screw-cap, giving the hand a vice-like grip. Molded rubber threads inside the "wrench" fit the threads of the cap, giving a powerful leverage. The soft live rubber of the "wrench" prevents it from slipping. At the same time the device protects the hands against sharp edges and heat of the container, nor is there any danger of damaging the top or breaking jars or bottles.

The illustration shows the Kristee "Sure-Grip" jar wrench as it is used on an ordinary fruit jar. It also works equally as well on smaller screw-tops such as a catsup bottle or syrup can.

Hard Rubber Toilet Seats

A comparatively new departure in the construction of toilet seats is being offered by the C. F. Church Manufacturing Company, Holyoke, Mass., in their "Sani-Black" seats and by the Never Split Seat Company, Evansville, Indiana, in their line of "Evermu" seats, both made of hard rubber.

The "Sani-Black" seat is a patented core construction and is built up of layers of

Cross-Sectional Views of the Sani-Black (left) and Evernu (right) Toilet Seats

wood, cross-grained, bound together by sheets of rubber and compressed. Each ply of wood is permanently sealed by a sheet of hard rubber, making it practically indestructible. The outside covering is a hard rubber composition completely encasing the laminated core and is produced under approximately 100 tons hydraulic pressure.

The "Evernu" seat differs somewhat from the "Sani-Black" line in that it has a hollow center. The interior wall is made of special hard rubber while the exterior wall is solid color hard rubber. The two walls are vulcanized into one piece when in a plastic state. Neither line of seats have any joints.

The outstanding features of both lines are their strength, moisture resistance, acid resistance and lightness.

Rubber Plate Scraper

A plate scraper, made entirely of rubber, is the latest product placed on the market by the Schacht Rubber Manufacturing Company, Huntington, Indiana. The scraper handle and blade are made in one piece with no joints or connections between the handle and blade wherein dirt, grease, food, etc., might lodge. They are supplied with either red or black rubber handle and white blade

An All-Rubber Plate Scraper

or all white. The scraper can be easily cleaned and being of rubber will not damage the plates or pans by scratching.

New Rubber Toys

Among the new toys shown at the recent Toy Fair in New York City the Anderson Rubber Company, Akron, O., exhibited the "Tube-a-loon," a toy ⅝" x 18", as shown in the accompanying illustration. A siren whistle is at one end of the handle and a 9" valve balloon at the other. The balloon and stick are in red, white and blue stripe colors. The company also exhibited a rubber toy duck which has an especially realistic appearance.

The Anderson "Tube-a-loon" Rubber Toy

The Anderson Rubber Company is one of the oldest rubber toy and novelty manufacturers in Akron, having been established since 1907. It is affiliated with the Western Reserve Rubber Company of the same city.

Current Crude Rubber Items

EXCHANGE SEATS SELL AT HIGH FIGURES

Last Sale is at $12,000 or Over $6,000 Advance Since First of the Year—Recent Activity in Buying Seats Due to Belief Exchange Will Amend Rules.

RECORD high prices have been paid for seats on the Rubber Exchange of New York, Inc., during the last month and more activity has been manifested in securing places on the Exchange than has been evident for some time.

On March 19 the sale of the membership of B. S. Ellis to L. W. Dumont, for the account of another, brought $7,000 or $250 over the previous record price. The next day the seat of Henry T. Helm was sold also through L. W. Dumont for $7,500, an increase of $500. This sale was followed on March 21 by the transfer of the seats of I. B. Katz and E. Vail Stebbins to J. Chester Cuppia for $7,900 and $8,000 respectively. On March 22 another sale at $8,000 was recorded when an extra membership of Lucius D. Tompkins, of the General Rubber Company, was transferred to L. W. Dumont, for the account of another.

Reaches Record Figure

On March 27 the seat of George J. Schwob went to William H. Stiles for $9,000 and the next day Charles Slaughter, of W. R. Craig & Company, bought Jacob Bleibtreu's seat at $10,000. Late on the same day J. Chester Cuppia was again in the market and bought the seat of Leonid Postnikoff of Harriss, Irby & Vose, for $11,000. This was the fourth seat to be purchased by Mr. Cuppia. On March 29 two other seats changed hands at the same figure, these going to Robert L. Baird, of the Baird Rubber & Trading Company, Inc., and Werner S. Hammesfahr, the latter sale being for the account of another.

The record was reached on March 30 when L. W. Dumont sold one of the seats he had recently acquired to Frank E. Irsch for $12,000.

The sale of Exchange seats at these figures represent an advance in the value of memberships of $6,000 since the first of the year and is over $7,000 above the average price of seats transferred during the past year.

The present activity in buying Rubber Exchange seats is credited in part to the largely increased business being done on the Exchange and a belief than the rules of the Exchange will shortly be amended to permit trading in "blankets," a grade of rubber sheets not now included in the tenderable grades traded in on the Exchange. If this change is adopted it will materially broaden the facilities of the Exchange to the rubber trade and enhance the value of Exchange memberships.

Ford Concession Attacked

Recent press dispatches from Brazil carry advices of a political attack by Senator Sousa Castro against Governor Bentes of the State of Para for the latter's part in granting the Brazilian rubber concession to the Ford interests and says that Senator Castro promises the publication of "a series of sensational documents regarding the Ford concession that will reveal its true nature." It is believed in Brazil that Henry Ford and his interests are not connected in any way with the incident and that the whole affair is merely a political gesture, as all the details and official documents relative to the granting of the concession have already been made public.

Rubber on the Exchange

Trading in rubber on the Rubber Exchange of New York during the last fortnight and up to the very hour of the British Prime Minister's statement on the abolishment of restriction had been somewhat listless and light in anticipation of the consequences of the British Governmental action. The disposition of the part of traders was one of watchful waiting. When the news broke on April 4, however, the market went into a sharp break and all daily records for trading were broken. The table below indicates the daily movements in prices and the volume of daily sales up to the close of the session immediately following Mr. Baldwin's announcement.

GUAYULE CULTIVATION SHOWN ON MOVIE SCREEN

A visual demonstration of the progress made in scientific experiments to produce rubber in the United States from the guayule shrub was given to the Secretary of Agriculture, William M. Jardine, and 60 other government representatives, including scientists of the Bureau of Standards, on March 29, in a series of motion pictures exhibited at the Department of Agriculture at Washington, by George H. Carnahan, president of the Intercontinental Rubber Company.

Scientific experiments in domesticating the guayule shrub of Mexico have been conducted by the company for the last 15 years in Monterey County, California, and the films shown illustrated the progress made in these experiments. Mr. Carnahan explained that the operations in California are now on a commercial basis and that 1,800 acres of plants were set out during February, making a total of 2,600 acres now under cultivation. The film exhibited also showed the operations of the company in Mexico.

The same film will be shown in New York on April 25 when Dr. David Spence of the Intercontinental Company will speak before the New York group of the Rubber Division of the American Chemical Society.

RESTRICTION IMPROVES HEALTH OF PLANTATIONS

From a purely agricultural and scientific standpoint, the recent inquiries conducted in connection with the question of the continuation of the restriction policy have brought out the fact that restriction has done a great deal for the care and health of the rubber trees on the plantations in the restricted areas.

Disease has never been less. The compulsory resting of areas, longer interval between tapping, and other means of restricting crops have taught a lesson not to be taken lightly. Should unrestricted and free exports come to pass, those who have adhered to restriction will enter better equipped to meet competition.

This is clearly indicated by the statement in London of a leading grower. He declared that experience has taught planters that the conservation of bark and resting of areas enable them to produce the full 100 per cent standard allowance from under 50 per cent of the acreage of trees in bearing and with a bark reserve of two feet in hand.

Closing Prices on Rubber Exchange of New York, Inc.

MARCH 21 TO APRIL 4, 1928

Date		Spot	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Sales*
Mar.	21	25.70	25.80	25.90	26.00	26.00	26.10	26.20	26.20	26.30	26.30	26.40	26.50	.....	1,200
	22	26.30	26.20	26.60	26.70	26.80	26.80	26.90	26.90	26.90	26.90	27.10	27.20	.....	1,186
	23	27.20	27.40	27.60	27.70	27.70	27.80	27.80	27.90	27.90	28.00	28.10	28.20	.....	655
	24	27.00	27.00	27.10	27.10	27.20	27.30	27.30	27.40	27.40	27.40	27.50	27.50	.....	308
	26	26.10	26.10	26.20	26.30	26.40	26.50	26.50	26.60	26.60	26.70	26.80	26.90	.....	716
	27	26.80	27.10	27.30	27.30	27.40	27.50	27.60	27.60	27.60	27.70	27.80	27.90	.....	497
	28	27.80	27.80	28.00	28.10	28.20	28.20	28.20	28.30	28.30	28.30	28.40	28.40	.....	791
	29	27.40	27.50	27.60	27.70	27.70	27.90	28.00	28.00	28.00	28.10	28.20	28.20	.....	619
	30	27.00	27.00	27.20	27.40	27.50	27.60	27.60	27.70	27.70	27.70	27.80	27.90	.....	556
	31	27.00	26.80	27.00	27.10	27.10	27.20	27.30	27.30	27.30	27.30	27.40	27.50	.....	322
Apr.	2	26.80	26.80	27.00	27.10	27.20	27.30	27.30	27.30	27.40	27.40	27.50	27.60	27.60	305
	3	27.10	27.10	27.40	27.50	27.60	27.60	27.70	27.70	27.70	27.70	27.80	27.90	27.90	816
	4	21.00	21.00	21.00	21.10	21.20	21.20	21.30	21.30	21.30	21.30	21.40	21.50	21.60	3,594

(*) In lots of 2½ tons each

CATALPO!

Rubber News Around the World

FAMOUS TIRE DESIGNER IS HONORED AT DINNER

A dinner in honor of W. H. Paull, chief Dunlop tire designer, was recently given in London by Frank Gray, one-time member of Parliament for Oxford and famous amateur tramp. Mr. Paull designed most of the tires which have carried the majority of European racing cars to victory during recent years.

Major H. O. D. Segrave made a few remarks in which he expressed his pleasure that Captain Malcolmn Campbell, facing greater difficulties, had lowered the major's record at Daytona Beach. When he mentioned that three American concerns were equipping a car to beat the Campbell record in 1929 with a speed of 230 miles per hour, Mr. Paull, while admitting that 230 miles per hour had many terrors, said the speed would not frighten Dunlops, and Major Segrave promised with Captain Campbell to race against all comers in 1929.

Mr. Paull's hobby is rose cultivation and, for his work in this direction, he has gained almost as much distinction in horticultural circles as he has in the rubber world for his work as a tire designer. He confesses to finding rose growing a soothing occupation when he thinks of all the dire possibilities of exploding tires at 230 miles an hour.

RUBBER SCHOOL STARTED IN MANCHESTER, ENGLAND

A special training school for British youths who desire to enter the rubber industry has been inaugurated at Manchester, England. A similar training course, the only one up to this time in existence in the United Kingdom, has been functioning for some time in London.

The Manchester school, which was recently opened at Newton Heath, has at present one class of boys who will be given two years' practical instruction. The scheme also includes the subsequent provision for evening classes where attendance for a number of years may enable workers to graduate at the College of Technology.

The scheme has been established under the auspices of the Institution of the Rubber Industry and has the support of all sections of the trade. An appeal is about to be launched for $10,000 to provide further equipment. The London school is the Northern Polytechnic, of Holloway, which has a special two years' course in rubber.

CATALPO!

Dinsmore Talks Before I. R. I.

R. P. Dinsmore, chief chemist of the Goodyear Tire & Rubber Company, Ltd., and chairman of the American Chemical Society, read a paper before the Institution of the Rubber Industry, London, at a special meeting on March 13, at the headquarters of the Institution of Mechanical Engineers. The subject of his lecture was the "Scheme of Accelerator Classification." An informal dinner to welcome Mr. Dinsmore was held at the Engineers' Club prior to the lecture.

Canadian Co. in Assignment

The Quebec Rubber Company, Ltd., of Quebec, Canada, manufacturer of automobile tires and inner tubes, has been under authorized assignment since February 15, according to a report of the Department of Commerce. Pending possible liquidation proceedings, no announcement has been made as to whether the company will continue operations as at present or reorganize.

Among the well-known European hotels which have been equipped with rubber tiling and flooring are Claridge's and the Cambord in Paris, the Savoy in London, Grand Hotel Metropole in Brussels, Regina in Interlaken, Continental in Stockholm, Savoy in Christiania and the Grand at Koenigsberg.

The importations of crude rubber into Germany during 1927 showed a decided increase over the figures for 1926, according to statistics compiled by the Department of Commerce. Net imports were reported as 38,891 tons as compared with 22,775 tons in 1926. More than one-third of the supply came from the Dutch East Indies.

It is understood that the Firestone Tire & Rubber Company will probably enter a bid for the American-West African line of steamers which are being put up for sale by the United States Shipping Board. The line consists of 11 vessels.

AMERICA HONORS PIONEER OF PLANTATION INDUSTRY

The Frank N. Meyer medal for distinguished service in plant production was presented in London recently to H. N. Ridley in recognition of the important part he has played in establishing plantations of Para rubber trees in the Oriental tropics. The presentation was made by the American consul-general on behalf of David Fairchild, the president of the American Genetic Association, to whom the award is entrusted by the staff of the office of Foreign Plant Introduction, of the Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

In making the presentation the consul-general referred to the letter in which Dr. Fairchild had communicated the award of the medal to Mr. Ridley. Dr. Fairchild stated that "the occasion should be of unusual interest to every inhabitant of the world who travels from place to place on the circular rubber cushions called tires." Dr. Fairchild's letter concluded with an appreciative reference to the part played by the Royal Botanic Gardens, Kew, in raising the plants from the seed brought from South America by Sir Henry Wickham in 1876 and sending them subsequently to Ceylon and Malaya. It was largely owing to Mr. Ridley's foresight that the seed obtained from these introductions formed the starting point for the huge rubber plantation developments now in the Middle East.

RUBBER IS EXHIBITED AT THE LEIPZIG FAIR

For the first time since their existence the Rubber Growers' Association, of Great Britain, and the International Association for Rubber Cultivation in the Netherlands Indies, are exhibiting at the Leipzig Fair. Both displays show a wide variety of rubber manufactured goods with particular attention paid to the exhibit of the latest rubber novelties. In each case the exhibits are the result of co-operative efforts with the rubber manufacturers of the two countries.

Another co-operative display is shown by eleven German tire manufacturers who united their efforts and exhibit their respective products on a single stand. The eleven firms include the following companies: Calmon, Continental, Deka, Dunlop, Excelsior, Fulda, Metzeler, Peters Union, Phoenix, Polack and Vorwerk.

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JOHN YOUNG JOINS PURE ASPHALT PRODUCTS CO.

John Young, formerly president of the Pioneer Asphalt Company, Lawrenceville, Ill., has announced his connection with the Pure Asphalt Products Company, New Market, N. J., where he will have supervision over the manufacture of Vansul-Puro Hydro-Carbon, a new MR just introduced to the industry exclusively through Vansul, Inc., 90 West Street, New York City.

Mr. Young is well known to the rubber industry, having been chemist at Firestone and sales manager of the Intermediates Department of National Aniline & Chemical Company previous to his connection with Pioneer.

The Pure Asphalt Products Company, located at New Market, N. J., on the main line of the Lehigh Valley Railroad, was organized in 1923 by Russell Dart, now president of the firm. The company has been successfully producing a line of quality asphalts since its formation.

Vansul-Pure Hydro-carbon is said to be properly balanced for use in rubber compounding and is graded as follows:

Melting Point	Penetration.
180° F.	15-20
230°-250°	8-12
265°-285°	5-10
300°-325°	3- 5

This MR will be marketed by Vansul, Inc., well-known distributors of rubber colors, pigments and fillers, and shipments will be made from the plant and from a warehouse in Boston.

GOODYEAR NOT TO BUILD MORE PLANTS IN THE U. S.

Answering a report that the Goodyear Tire & Rubber Company was planning the erection of a factory in Atlanta, Ga., P. W. Litchfield, president of the company, made the announcement in a recent statement that "Goodyear has no intention at the present time of building a tire factory in Atlanta or any additional tire factories in the United States." The only possibilities on the building schedule for the near future include a reclaiming plant and a textile mill, and sites for these have not been given any close consideration, he said.

The statement was made in the face of press dispatches from the south, quoting C. W. Martin, Jr., division manager for the Goodyear company in the Atlanta district, to the effect that the company had definitely decided on the establishment of a southern factory for the manufacture of tires. Two years ago the Goodyear company opened a tire fabric plant at Cedartown, Ga., and the erection of a tire plant in that region, in further line with the Goodyear company's policy of expansion and de-centralization, would be considered by many as the next logical step in economically handling the distribution in the growing markets of the south.

Rubber Ducks as Decoys

The Miller Rubber Company announced Wednesday production of a rubber decoy duck, made after the manner of the inflated toys, which is expected to prove popular with hunters next season.

The rubber ducks are blown up and inflated like a balloon and are made in both duck and drake mallards, it was said. Three weights fastened on the bottom of the duck hold it upright in the water.

The advantage of the new ducks, it is pointed out, is that a hunter can place a dozen of the deflated decoys in his pocket when he goes hunting, rather than carry a load of the bulky wooden decoys.

Ecuador Exports Gain

Exports of rubber from Guayaquil to the United States amounted to 790,172 pounds valued at $158,699 in 1927 against 695,800 pounds valued at $197,833 in 1926, according to the Department of Commerce. With the exception of July, August, and September, 1927, the price for Maroma was 80 sucres a quintal or more. A price of between 80 and 90 sucres is sufficiently to induce the gathering of rubber so a good crop was obtained. Apparently, after becoming convinced that the high prices of 1925 and early 1926 would not return, the gatherers resigned themselves to selling at the more moderate 1927 level.

IT PAYS TO MICRONIZE

PROTECTION

As every manufacturer knows, a hose wears out even more quickly from lack of use than from excessive service.

The inactive hose must be protected from sunlight, oil and grease, all of which spell deterioration. Allowance must also be made for stubborn kinks and the strain upon the hose when it has been coiled and hung up.

In use, it is subjected to dragging, stone cuts, sharp curves and other abuse.

In order that the cover and the inner tube may be kept resilient under all conditions, the rubber compound must be strengthened with that agent which insures greatest tensile strength,—

MICRONEX

Reg. U.S. Pat. Off.

The World's Standard Gas Black

—which reduces deterioration, strain and the destructive forces of foreign elements and sunlight to a minimum.

Investigate the merits of MICRONEX at once. Quotations and samples upon request.

Binney & Smith Co
41 E. 42nd Street-New York City

AMERICAN HOSE IMPORTS TO AUSTRALIA DECLINE

Australia has always presented a good market for American garden hose, according to reports of the Department of Commerce. The local industry, however, is steadily growing and under the added handicap from sharp German competition and the merchandising methods of certain local manufacturers' agents, a decline in imports from the United States has been noted. The local industry is centered in three manufacturers—the Dunlop Rubber Company of Australia, Ltd., Barnet Glass Rubber Company, Ltd., and Perdriau Rubber Company, Ltd. While it is not possible to secure accurate production figures of the local factories, it is estimated that they are responsible for about 50 per cent of the decrease in the United States trade.

Imports from countries other than the United States and Germany are slight and confined chiefly to a small quantity from Canada.

Of the local manufacturers Perdriau sells their finest grade under a three-year guarantee. It is advertised as being made of selected red rubber, strongly reinforced with first grade British canvas.

FRENCH RUBBER IMPORTS SHOW STEADY INCREASE

France retained 34,274 long tons of crude rubber during the calendar year 1927 from total imports of 42,576 long tons, 8,302 long tons having been exported, according to statistics made public by the Department of Commerce. Imports, re-exports, and amounts of rubber retained by France for each of the last five years are shown below. The figures given in this table are net weight, being arrived at by deducting 12 per cent from the gross weight. The allowance of 12 per cent for tare seems high, but in view of the inclusion of gutta-percha, balata, and perhaps reclaimed and scrap rubber with crude rubber it is believed that the resulting figures more closely approximate the real extent of French imports and exports of crude rubber than any other available information.

French Rubber Trade, 1923-1927

	Imports Long tons	Re-exports Long tons	Retained Long tons
1923	32,072	4,680	27,392
1924	35,651	5,205	30,446
1925	39,606	6,650	32,956
1926	42,184	7,946	34,238
1927	42,576	8,302	34,274

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of

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CATALPO!

LATE MARKET PRICES

Crude, Scrap & Reclaimed Rubber - Cottons and Fabrics

APRIL 4, 1928

COTTON

THE cotton market has shown a satisfying degree of steadiness over the past fortnight which has done much to stimulate orders. Interest in the market is now centered on developments relative to the new crop with a general bullish tone expressive of the confidence of the trade in the maintenance of present prices. There is no reported let-up in the activities of domestic mills and the estimated consumption for March is stated at approximately 625,000 bales which is about the same consumption as in February. The principal news effecting trading over the fortnight has been the persistent rumor that the government boll weevil report will show the bugs to be more active than ever before. Important factors in the market, however, have expressed themselves as believing that the present range of prices will continue until a protracted spell of favorable or unfavorable weather covers the cotton belt.

High, low and closing prices as of April 3, were as follows:

	High	Low	Close Apr. 3	Close Mar. 19
April	19.25	19.25	19.25	——
May	19.51	19.27	19.28	19.03
July	19.39	19.16	19.18	18.88

Tire Fabrics

A good volume of business is reported in tire fabrics with most of the orders calling for deliveries up to July 1, although some commitments have been made beyond that date. Quotations have steadied at slightly higher levels than last reported. Mills are reported to be working at full normal capacities. The Egyptian market is especially strong and high and may result in further demands upon the domestic grades.

CORD			
Peeler, carded, 23/5/3	lb.	43½@	.44
Peeler, carded, 23/4/3	lb.	.44½@	.45⅓
Peeler, carded, 13/3/3	lb.	.41½@	.42
Peeler, carded, 15/3/3	lb.	.42 @	.42½
Egyptian, carded, 23/5/3	lb.	.55 @	.56
Egyptian, combed, 23/5/3	lb.	.60 @	.62
CHAFERS			
Carded American, 8 oz.	lb.	.38 @	.39½
Carded, American, 10 oz.	lb.	.40 @	.41
Carded American, 12 oz.	lb.	.39 @	.42
Carded American, 14 oz.	lb.	.37 @	.41
LENO BREAKER			
Carded American, 8¼ oz.	lb.	.39 @	.41
Carded American, 10¼ oz.	lb.	.39 @	.41
SQUARE WOVEN			
Carded American, 17¼ oz. 23-11 ply	lb.	.44 @	.45
Carded American, 17¼ oz. 10-5 ply	lb.	.37 @	.38

Sheetings

Quotations on sheetings have remained firmer but little demand has been present. Buyers have shown a disposition to make commitments for only immediate requirements. Prices have remained practically unchanged as follows:

40-inch, 2.50-yard	yd.	.12⅝@	.12½
40-inch, 2.85-yard	yd.	.10¾@	.10⅞
40-inch, 3.15-yard	yd.	.12 @	.12⅛
40-inch, 3.60-yard	yd.	.09⅞@	.10
40-inch 3.75-yard	yd.	.08¼@	.08½
40-inch 4.25-yard	yd.	.07¼@	.07½

Ducks

A fair demand has been shown in ducks during the last fortnight with prices ruling firmer. Mills are also reported to be materially reducing their inventories through the sale of accumulations. Single filling and enameling ducks have been in particular demand. Late quotations follow:

Belting and Hose	lb.	.32½@	.33
Enameling	lb.	.33 @	.37
Shoe Ducks	lb.	.30 @	.33
Single filling	lb.	.14½@	.17
Double filling	lb.	.17 @	.18

RECLAIMED RUBBER

The market in reclaimed has held steady for the past fortnight and reported shipments from reclaimers have been heavier than usual. Prices remain the same but nominal. Just what effect the further drop in crude rubber prices will have on the reclaimed market in the next two weeks is a matter for speculation but it will doubtless be influenced if the crude rubber market continues its downward course. Late prices follow:

High Tensile			
Super-Reclaim No. 1 Black	lb.	.16 @	.16½
Super-Reclaim No. 2 Black	lb.	.13½@	.14
High Tensile Red	lb.	.15¾@	.16¼
Shoe			
Unwashed	lb.	.08 @	.08¼
Washed	lb.	.10 @	.10½
Tube			
No. 1 (Floating)	lb.	.16 @	.16½
No. 2 (Compounded)	lb.	.13½@	.14
Tires			
Black, washed		.10 @	.10¼
Black, unwashed		.08¼@	.08½
Black selected tires	lb.	.08¾@	.09
Dark Gray	lb.	.11½@	.12
Light Gray	lb.	.13 @	.13¼
White	lb.	.15 @	.15½
Truck, Heavy Gravity	lb.	.07½@	.07¾
Truck, Light Gravity	lb.	.08 @	.08¼
Miscellaneous			
Mechanical Blends	lb.	.07 @	.08
Red	lb.	.14 @	.14½

Scrap Rubber

Stocks in dealers' hands have remained limited and collections are still slow. Demand from reclaimers continues good. The decline in the crude rubber market has not yet been felt by the scrap dealers but a reduction in quotations on lines is looked for if the downward movement in crude rubber continues. Late prices to consumers were quoted as follows:

(Prices to Consumer)

Auto tire peelings	ton	36.00	@37.50
Standard White auto	ton	57.50	@60.00
Mixed auto	ton	26.00	@27.50
Bicycle tires	ton	30.00	@32.50
Clean solid truck tires	ton	22.00	@24.00
Boots and shoes	lb.	.01½@	.01⅝
Arctics, trimmed	lb.	.01⅛@	.01¼
Arctics, untrimmed	lb.	.01 @	.01¼
Inner tubes, No. 1	lb.	.07½@	.07¾
Inner tubes, No. 2, compounded		.04⅞@	.05
Inner tubes, Red	lb.	.06¼@	.06½
Air Brake Hose	ton	38.00	@40.00
Rubber Hose	ton	18.00	@20.00

CRUDE RUBBER

AFTER remaining fairly steady around 27½ cents during the last fortnight the crude rubber market went to pieces on April 4, upon the receipt of the news from London that restriction would be a thing of the past after November 1. The New York outside market was completely demoralized and practically all quotations were nominal without takers. In the case of Paras and wild rubber no quotations were even offered. The market had been in a watchful waiting attitude since the British Government had stated that some announcement on restriction would be made before the Easter recess of Parliament but the trade in general anticipated no such startling decision as was pronounced by Mr. Baldwin. At the present time no forecast can be made as to what the market will do but there are no factors in the situation today which would make for any steadiness and further declines are looked for. Stocks of crude rubber have dropped slightly in London during the last two weeks but shipment to the United States still continue in fairly heavy volume. Prices quoted on the New York outside market at the close on April 4, were as follows:

Plantations—

Ribbed Smoked Sheets—		
Spot	.21½@	.21¾
April	.21½@	.21¾
May-June	.21½@	.21¾
July-Sept.	.21¾@	.22
First Latex, crepe spot	.21½@	.21¾
Amber Crepe, No. 2	.20½@	.20¾
Amber Crepe, No. 3	.20 @	.20¼
Amber Crepe, No. 4	.19¾@	.20
Brown Crepe, Rolled	.18¼@	.18½
Brown Crepe, Clean, thin	.19¼@	.19¾
Brown Crepe, specky	.19¼@	.19½
Liquid Latex, per gal.	@	1.50

Paras—

Up-river Fine	Nominal
Up-river Medium	Nominal
Up-river Coarse	Nominal
Acres Bolivian, fine	Nominal
Caucho Ball, Upper	Nominal
Islands, fine	Nominal

Centrals—

Central, scrap	Nominal
Esmeraldas	Nominal
Guayule, washed and dried	Nominal

Balata—

Block, Colombia	Nominal
Block, Cuidad	Nominal

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers		
Spot	.10¼@	.10⅜d
April	.10¼@	.10⅜d
May-June	.10⅜@	.10½d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot	.10	@	.10¼d

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Whenever you are in need of good rubber equipment get our list of machinery first. We are sure to have just what you want at the lowest prices.

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The Hunter Process
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Automobile Tire Molds and Cores

GENERAL MACHINE WORK

Akron, Ohio

LATE RUBBER CHEMICAL PRICES

Accelerators—Colors—Softeners—Compounding Materials

APRIL 5, 1928

ALTHOUGH tire plants are maintaining somewhat lower production schedules than were in effect in February and March, shipments of staple rubber chemicals and compounding materials continue at a fair level. Producers and dealers report firm demand for accelerators, blacks, whites and anti-oxidants; but the market is not as active as they would like. Footwear plants are in the midst of their dull season, while mechanical goods and drug sundries factories are only moderately active. Conditions in the industry are somewhat unsettled, especially in view of the announcement regarding the abolition of restriction later this year, and manufacturers are proceeding with extreme care in committing themselves too far ahead. There are a few price re-arrangements made in the accompanying list, but in general prices are firm. Latest quotations are as follows:

ACCELERATORS

Organic			
A-7	lb.	.65 @	.85
A-11	lb.	.70 @	.90
A-16	lb.	.65 @	.85
A-19	lb.	.70 @	.90
A-20	lb.	.64 @	.80
Aero-X	lb.	.75 @	—
Aldehyde ammonia, crystals	lb.	.65 @	.70
Aniline oil, drums, f.o.b. works	lb.	.15 @	.16¼
Crylene	lb.	.70 @	—
paste	lb.	.50 @	—
Di-Ortho-Tolylguanidine	lb.	.80 @	.85
Diphenylguanidine	lb.	.64 @	.68
Ethylidene aniline	lb.	.60 @	.65
Formaldehyde Aniline	lb.	.36 @	.38
Grasselerator 102	lb.	.62½@	.67½
Grasselerator 552	lb.	4.45 @	4.60
Grasselerator 808	lb.	1.05 @	1.35
Grasselerator 833	lb.	1.50 @	1.75
Heptene	lb.	.55 @	—
Hexamethylene-tetramine	lb.	.62½@	.67½
Lithex	lb.	.18 @	.20
Methylenedianilide	lb.	.38 @	.40
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.90
Para-Nitrosodimethylaniline, f.o.b. works	lb.	.92 @	.96
Piperidine-Piperidyldithio-Carbamate	lb.	4.45 @	4.60
R & H 40	lb.	.50 @	.55
R & H 50	lb.	.50 @	.55
Safex	lb.	1.20 @	1.25
Tensilac, No. 39	lb.	.55 @	.60
Tensilac, No. 41	lb.	.65 @	.70
Thermlo F	lb.	.50 @	.55
Thiocarbanilide, drums	lb.	.25½@	.26½
Thionex	lb.	3.25 @	—
Trimene	lb.	.75 @	—
base	lb.	1.20 @	1.35
Triphenylguanidine	lb.	.65 @	.70
Vulcanex	lb.	.82 @	.86
Vulcone	lb.	.70 @	.74
Vulcanol	lb.	1.05 @	1.08
Z 88	lb.	.75 @	1.00
Inorganic			
Lead, sublimed blue	lb.	.08¼@	.08¾
Lead, white	lb.	.10½@	.12½
Litharge, domestic	lb.	.09 @	.09¼
Magnesia, calcined, light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)			
Blues			
Prussian	lb.	.33 @	.35
Ultramarine	lb.	.06 @	.30
Browns			
Sienna, Italian	lb.	.05 @	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.27 @	.31
medium	lb.	.29 @	.32
dark	lb.	.31 @	.34
Chromium Oxide, bbl.	lb.	.34 @	.36
Reds			
Antimony crimson, 15/17	lb.	.44 @	.50
sulphur free	lb.	.44 @	.55
golden 15/17 F.S.	lb.	.18 @	.22
Indian English (dom.)	lb.	.08 @	.10
Oximony	lb.	.12¼@	—
Red oxide, reduced	lb.	.10 @	.11
pure	lb.	.14 @	.15
Venetian red	lb.	.02 @	.06
Vermillion, quicksilver, English	lb.	1.75 @	1.85
Whites			
Lithophone, Akeolith	lb.	.05 3/5@	.06
Lithophone, Azolith	lb.	.05¼@	.05¾
Lithopone, Vanolith	lb.	.05¾@	—
Titanox	lb.	.10 @	.10½
Cal. Base Pigment	lb.	.10 @	.10½
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.06½@	.07
ZZ (leaded)	lb.	.06⅝@	.07⅛
Zinc Oxide—French Process			
White seal	lb.	.11⅞@	—
Green seal	lb.	.10⅞@	—
Red Seal		.09⅞@	—
Yellows			
Chrome	lb.	.15½@	.16½
Ocher, French medium	lb.	.03½@	.06
domestic	lb.	.01⅝@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate	lb.	.10½@	.12
Asbestine	ton	14.75 @	18.00
Barium carbonate	lb.	.03½@	.05
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	12.00 @	18.00
Western prime white	ton	23.00 @	—
imported	ton	27.00 @	36.00
Basofor	lb.	.04½@	—
Blacks			
Arrow "Aerfloted"	lb.	.08 @	.12
Bone Black	lb.	.05½@	.11
Carbon, compressed	lb.	.07½@	.11½
Carbon, uncompressed	lb.	.07 @	.11
Drop Black	lb.	.06 @	.10
Lamp Black	lb.	.12 @	.40
Micronex	lb.	.08 @	.12
Velvetex carbon	lb.	.04 @	.07
Blanc fixe dry f.o.b. works	lb.	.04¼@	.04½
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk	ton	12.00 @	14.00
Clay, China, domestic	ton	8.00 @	9.00
Aerfloted Suprex	ton	9.00 @	20.00
Mineral Flour, c. l. fob mine	ton	20.00 @	23.00
Tensulite		15.00 @	—
Glues, extra white	lb.	.22 @	.26
medium white	lb.	.20 @	.24
Magnesia, carbonate	lb.	.06 @	.06½
Mica, powdered	ton	65.00 @	80.00
Rotten Stone (powdered)	lb.	.02½@	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.30 @	3.70
Talc, domestic	ton	12.00 @	15.00
Velvetex	lb.	.04 @	.07
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	—
Superfine	ton	10.00 @	12.00
Witco	ton	12.00 @	—
Wood pulp XXX	ton	45.00 @	—
Wood pulp X	ton	25.00 @	—
Zinc Carbonate	lb.	.09½@	.10½

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Montezuma, solid	ton	28.00 @	36.00
Montezuma, granulated	ton	32.00 @	42.00
Paradura	ton	62.50 @	65.00
Pioneer, MR, solid	ton	42.00 @	45.00
Pioneer-granulated	ton	52.00 @	55.00
Robertson, MR, solid	ton	34.00 @	80.00
M.R. (gran)	ton	38.00 @	80.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulphuric, 60 degrees	ton	10.50 @	11.50
66 degrees	ton	15.00 @	16.00
Tartaric, crystals	lb.	.35 @	.36
Acids, Fatty			
Stearex	lb.	.10 @	.14
Stearic, single pressed	lb.	.10 @	.11
Double pressed	lb.	.11½@	.12
Alkalies			
Caustic soda, 76%	cwt.	3.76 @	3.91
Soda ash, 58% C.L.	cwt.	1.40 @	
Oils			
Castor, No. 3 bbls.	lb.	.13½@	.14
Corn, crude, bbls.	lb.	.09¼@	.11
refined	lb.	.11 @	.11½
Cottonseed, crude		.08½@	.08¾
Cycline	gal.	.27 @	.34
Degras	lb.	.04¼@	.04½
Fluxrite	lb.	.05 @	.06
Glycerine, C. P. drums	lb.	.17 @	.17½
Linseed, Raw C.L. bbl.	lb.	.09½@	.10
Palm Lagos	lb.	.07¼@	.07½
Niger	lb.	.07¾@	.08
Vansulol	lb.	.10½@	.—
Para-Flux	gal.	.17 @	—
Peanut, domestic, crude	lb.	.12 @	.1
Petrolatum, white	lb.	08⅞@	.
dark amber	lb.	.08⅜@	.
Pine, steam distilled	lb.	.70 @	
Rapeseed, refined	gal.	1.04 @	1.06
Rosin, first rectified	gal.	.55 @	—
second rectified	gal.	.58 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt.	bbl.	9.00 @	10.00
Rosin, grade K, 280 lb.	bbl.	10.20 @	
Pigmentar	gal.	.33 @	.41
Tar Retort, 50 gal.	bbl.	12.50 @	13.00
Solvents			
Acetone, pure	lb.	.13 @	
Alcohol denatured, No. 1 bbls.	gal.	.37½@	.44½
Benzol, 90%	gal.	.28 @	—
Carbon bisulphide	lb.	.05½@	.06¼
Carbon tetrachloride		.06¾@	.07½
Motor gasoline, steel bbls.	gal.	.17 @	—
Naptha, solvent	gal.	.35 @	.40
Turpentine, spirits	gal.	.60 @	.64
wood	gal.	.50 @	.54
Waxes			
Beeswax	lb.	.56 @	.58
Carnauba	lb.	@	.50
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.07 @	.07½
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Miscellaneous			
RSL Mold Solution	gal.	.75 @	1.00

ANTI-OXIDANTS

Antox	lb.	.79 @	.83
Neozone	lb.	.74 @	—
Oxynone	lb.	.68 @	.90
Resistox	lb.	.60 @	.70
Stabilite	lb.	.65 @	—
VGB	lb.	.55 @	.66

SUBSTITUTES

Black	lb.	.08 @	.14
White	lb.	.10 @	.16
Brown	lb.	.08 @	.15

VULCANIZING INGREDIENTS

Sulphur Chloride (drums)	lb.	.03½@	.06
Sulphur flour,			
Superfine bags	cwt.	2.20 @	2.30
Superfine, bbls.	cwt.	2.55 @	3.10
100% pure, refined, bags	cwt.	2.60 @	3.15
bbls.	cwt.	2.95 @	3.50

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

THE outstanding news in rubber circles, in the last two weeks was the announcement by the British Government on April 4 of the abolition of restriction as of November 1, next. The news immediately broke the rubber market and prices tumbled to 21 cents for spot smoked ribbed sheets. The daily fluctuations on the New York outside market and the London prices can be traced in the following tables. Net imports of crude rubber into the United States during February were reported at 30,356 tons which represented a decline from the January figure. Fairly heavy shipments, however, are reported as invoiced and en-route to the United States. London stocks continue to show slight decreases each week.

Automobile tires and inner tubes produced during February showed a decided gain over January and reflected the increase in automobile production and the demand for original tire equipment and spring dating orders.

With the definite prospect that restriction will cease on November 1, much can happen to affect rubber statistics and several of the following tables can be studied to advantage, particularly the tables of stocks of crude rubber on hand in the United States, London, Singapore and Penang. The export and import tables will also reflect the production of crude rubber from the areas now operating under restriction.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available. The section accordingly affords the most up-to-date, complete and convenient statistical service in the industry.

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U. S. Imports and Exports of Crude Rubber

YEARS	Gross Imports: Long Tons	Gross Imports: Total Declared Value	Gross Imports: Average Declared Value per pound Cents	Re-exports: Long Tons	Re-exports: Total Declared Value	Re-exports: Average Declared Value per pound Cents	Net Imports: Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	425,142	338,998,697	35.59	27,775	24,735,488	39.77	403,472
1926:							
Jan.	42,404	72,528,151	76.36	2,084	3,747,505	80.28	40,320
Feb.	32,865	58,733,370	79.78	1,430	2,280,168	71.17	31,435
Mar.	42,152	70,589,581	74.76	1,836	2,735,234	66.51	40,316
Apr.	34,544	48,742,539	62.99	1,128	1,605,093	63.58	33,416
May	29,756	36,896,080	55.35	1,052	1,558,987	66.17	28,704
June	24,900	34,498,561	61.85	1,105	1,371,217	55.41	23,795
July	35,820	33,061,470	41.20	1,554	1,743,854	50.09	34,266
Aug.	27,400	24,670,752	40.21	1,318	1,339,563	45.38	26,082
Sept.	37,112	32,625,032	39.02	1,437	1,519,870	47.20	35,675
Oct.	29,333	25,300,483	38.50	1,366	1,316,270	43.02	27,967
Nov.	38,925	34,661,631	39.97	1,482	1,320,461	42.00	37,443
Dec.	37,754	33,261,366	39.33	1,904	1,841,305	43.16	35,850
1927:							
Jan.	43,340	36,753,719	37.99	1,526	1,444,734	42.22	41,814
Feb.	28,338	23,110,257	36.41	2,451	2,277,297	41.47	25,887
Mar.	35,514	28,693,026	36.07	2,763	3,249,665	52.50	32,751
Apr.	46,202	37,284,806	36.15	1,575	1,428,425	40.45	44,627
May	36,543	30,998,657	37.37	2,782	2,501,562	41.74	33,761
June	33,045	27,833,770	36.28	1,775	1,550,592	38.99	31,270
July	37,678	31,678,259	37.53	1,958	1,560,858	35.58	35,720
Aug.	32,810	26,396,904	36.59	1,809	1,382,768	34.49	31,001
Sept.	33,301	23,852,857	33.73	3,500	3,036,929	34.91	29,801
Oct.	30,184	22,163,044	32.77	2,513	2,042,713	36.29	27,671
Nov.	38,113	27,039,129	31.67	2,468	2,014,196	36.43	36,123
Dec.	30,696	22,183,601	32.26	2,654	2,245,754	37.77	28,042
1928:							
Jan.	39,108	30,278,444	34.56	1,988	1,734,900	38.95	37,552
Feb.	33,094	27,309,598	36.84	2,738	2,229,589	36.34	30,356
Mar.							
Apr.							
May							
June							
July							
Aug.							
Sept.							
Oct.							
Nov.							
Dec.							

U. S. Consumption of Crude Rubber

(Rubber Association of America statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1921	1922	1923	1924	1925	1926	1927	1928
Jan.	5,045	16,938	30,106	29,058	29,638	32,196	31,518	34,403
Feb.	5,955	14,767	30,149	25,736	29,761	31,136	30,137	33,702
Mar.	9,190	21,408	36,629	28,385	33,498	32,936	36,141	
Apr.	13,084	19,294	29,085	27,129	34,139	32,696	35,871	
May	16,023	23,246	36,155	25,845	35,322	29,364	34,592	
June	16,142	31,713	24,272	22,753	35,822	28,598	33,801	
July	18,310	24,522	17,685	23,396	36,053	27,577	29,219	
Aug.	23,649	29,361	20,359	28,982	35,909	34,533	33,460	
Sept.	16,705	24,410	17,594	31,497	31,691	32,904	27,214	
Oct.	16,814	26,881	21,321	31,520	29,047	29,836	26,790	
Nov.	14,105	24,950	20,437	27,289	28,853	28,080	26,792	
Dec.	15,482	25,070	21,902	27,199	28,748	26,293	25,492	
Totals	170,504	282,560	305,694	328,769	388,481	366,149	371,027	

Figures on Quarterly Basis

Quarter	1921	1922	1923	1924	1925	1926	1927
Jan./Mar.			96,776	87,609	95,263	94,301	99,216
Apr./June	65,463	127,360	89,493	75,674	104,099	87,109	103,242
July/Sept.			55,621	83,813	99,493	93,793	89,210
Oct./Dec.	105,962	155,067	63,617	92,656	85,789	83,212	80,860
Totals	171,425	282,427	305,507	339,752	384,644	358,415	372,528

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
January 28	4,469	420	975	212	6,076
February 4	3,733	948	1,779	668	7,128
February 11	4,994	733	1,089	1,155	7,971
February 18	4,717	1,256	1,469	1,147	8,589
February 25	6,147	613	1,664	240	8,664
March 3	3,865	618	1,576	1,756	7,815
March 10	4,789	685	1,376	1,951	8,801
March 17	3,981	487	1,463	1,856	7,787
March 24	4,253	409	1,266	2,323	8,251
March 31	2,652	528	1,028	776	4,984

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1925																																
July	81⅛	81⅞	83⅜	—	—	88½	90½	96⅝	94⅞	99⅝	106⅜	—	110	105⅝	110⅝	117	116¾	118⅞	119	121	117⅛	119	117⅜	112¾	112¾	86¾	107¾	96⅞	93⅞	89⅝	93¾	103¾
August	94⅛	95⅛	95⅜	86¾	85⅜	86¾	81⅜	79	78¾	71⅜	72½	76⅛	81½	80⅝	77⅜	78¼	73¼	80½	84¼	85¾	82½	82½	82⅜	82⅝	82⅝	85¾	85⅜	87⅜	87⅜	90	90	88
September	88¾	85	81¾	81¾	81¾	83	—	97	97½	101	100¾	102	92½	95½	97	99¾	99	99	101¾	102	99¾	99¾	93½	90	89	89	89⅜	91⅜	91½	90	100¾	98
October	91¾	91¾	92	86¾	94⅞	97	97	99	99⅛	99¾	99¾	97¾	95½	97	97	99¾	99¾	99	102	99¾	99¾	99¾	99¾	99¾	99¾	99¾	101⅞	99¾	99¾	100¾	99¾	98
November	99¾	—	98¾	88¾	88¾	100	—	98¾	99¾	100¾	101⅜	104½	105½	—	101	99¾	90¾	93	107	107	109¾	119¾	110½	109	106¾	—	108¾	108¾	91	91¾	91¾	104¾
December	106⅝	108½	107¾	107¼	108¼	108	109	109¾	106	106½	106½	—	101	99¾	90¾	93	86¾	—	109¾	107	88¾	88¾	88¾	88¾	88¾	—	108¾	91	93	—	—	98½
1926																																
January	—	—	—	87	87¾	85½	86½	87⅜	87⅜	—	88¾	88¼	88¼	84½	85½	82½	82½	—	75½	75⅜	75	72	72¾	68	66½	67	69¼	70½	69	—	—	79½
February	—	67½	66¼	66¾	68	69	—	—	66	66	68	66	65½	68	68	68	69	69	69	69	69	66	66	82	82	81¾	51	60	—	—	—	62¾
March	67	55	58	63¾	63½	67½	—	—	55¾	56	60	61	61½	62	62	60½	60½	60½	59	61	61	61	61	60	60	59½	48	48	49	49	58	59
April	59	—	59	56	59	56½	56½	53	53	49	49	49	51½	47½	47½	47	47	47	47½	47½	47	47	48	48	48	48	48	48	48	48	48	51¼
May	48½	—	50	50¾	49¼	49¾	49½	49	49	41¾	43	43	50½	49¼	47⅝	48½	48½	48½	47½	47½	47½	47½	47½	46	46	46	46	46	46	46	46	47¾
June	41½	42	41¾	42	42	41½	41½	42	42	42	42	42	42	42	42	42	42	42	42	42	44	44	44	43½	43½	42	42	42	42	42	42	42½
July	42	42	42	38¾	38½	41½	41½	41¾	41¾	43½	43½	43	43	43	43	43	43	43	43	43	43	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¾
August	—	—	—	37	37	38¾	—	40¾	40¾	40¾	41¼	41¼	37½	37½	40	40	40	40	39	39	39½	41	39¾	39	39	39	39	39	39	39	39	39½
September	40¾	40¾	40¾	—	43¾	—	42¾	42¾	42¾	42¾	42¾	42¾	42¾	40¾	40¾	40¾	40¾	40¾	40¾	41	39½	41¼	42¼	42	42¼	42¼	42¼	42¼	42¼	42¼	42¼	42¼	41
October	43	—	41	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	42½	42½	42½	42½	42½	42½	42½	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	—	—	42½
November	41¾	—	41	41¾	41¾	41¾	41¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	42¾	—	—	42½
December	36¾	37½	37½	37½	37½	37½	37	37¾	37¾	37¾	37	37	37½	37½	37½	37½	37½	37½	37½	37½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½	38½
1927																																
January	—	38½	38½	39	39¾	39¾	40¾	40¾	—	40¾	40¾	40¾	40¾	40¾	40¾	40¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾	39¾
February	—	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾	38¾
March	—	39¾	40	40	41	41	41¾	41¾	41¾	41¾	41¾	41¾	40¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41¾	41	41¼	41
April	—	41¾	41¾	41¾	41	41	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼
May	—	40½	40½	40½	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼
June	—	40¾	40¾	40¾	40¾	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½
July	—	35½	35¼	35¼	35¼	35¼	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½
August	—	34	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾
Sept.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Oct.	—	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾
Nov.	—	35	35¼	35¼	35¼	35¼	36¼	—	—	36¾	36¾	—	37	36¾	36¾	36¾	36¾	36¾	36¾	36¾	36¾	36¾	36¾	36¾	35	35	35¼	35¼	35¼	35¼	35¼	35¼
Dec.	—	40¼	40¼	—	—	—	—	40½	40½	40½	—	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40½	40	40¼	40¼	40	40	40	40¼
1928																																
January	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
February	—	37½	37¾	37¾	37¾	37¾	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
March	—	29	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾	28¾
April	—	—	27¼	27¼	27¼	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.36

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	
May	15.25	27.39	18.89	58.47	47.75	40.76	
June	15.11	26.88	18.81	77.26	42.50	37.25	
July	14.67	26.10	22.16	103.16	41.03	34.44	
Aug.	13.93	28.84	26.17	82.99	38.50	35.12	
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Sixth Restriction Year—Second Quarter

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	18⅝	13⅞	—	17	15⅝	12¼	
2	17¾	13¾	12⅞	18	15¼	—	
3	18	13⅝	12⅞	19	—	13⅛	
4	17⅞	—	10¼	20	14¾	13	
5	—	13⅝		21	14⅜	12¾	
6	17⅜	13½		22	14⅜	13	
7	17⅜	12⅝		23	14⅝	13⅛	
8	17⅞	12¼		24	13⅞	13¼	
9	16¼	12⅛		25	13¾	—	
10	16⅛	12⅛		26	—	13	
11	16⅝	—		27	14	13⅛	
12	—	11⅜		28	14⅛	13⅛	
13	15⅞	11½		29	13⅞	13¼	
14	15⅜	11⅝		30	—	13⅞	
15	15⅝	11¾		31	—	13	
16	15½	12⅛					

(The average price for the period for which daily prices are reported above is approximately 14.205 pence. The British Colonial Secretary has announced that only 60% of the standard production will be exportable from the restricted area during the next quarter if the price during the entire current quarter does not average at least 21 pence.)

Average Price in Previous Quarters

Quarter	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28
Nov.-Jan.	14.285	14.175	17.9983	46.709	19.265	19.023
Feb.-Apr.	16.858	12.917	19.356	28.103	19.696	
May-July	14.242	10.947	38.469	21.001	18.165	
Aug.-Oct.	14.944	14.632	43.269	20.199	16.620	

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Mar. Cents	Apr. Cents	Day of Month	Mar. Cents	Apr. Cents	Day of Month	Mar. Cents	Apr. Cents
1	18.95	—	11	—		21	19.80	
2	18.90	19.95	12	19.00		22	19.80	
3	18.70	19.80	13	19.05		23	19.75	
4	—	19.85	14	19.10		24	19.85	
5	18.95		15	19.20		25	—	
6	18.90		16	19.50		26	20.00	
7	18.95		17	19.65		27	20.00	
8	18.95		18	—		28	19.90	
9	18.95		19	19.45		29	19.85	
10	18.95		20	19.90		30	19.65	
						31	19.70	

Average Monthly Price Per Pound

Month	1926 Cents	1927 Cents	1928 Cents	Month	1926 Cents	1927 Cents	1928 Cents
Jan.	20.85	13.42	19.12	Aug.	18.57	20.04	
Feb.	20.60	14.10	18.40	Sept.	17.02	21.95	
Mar.	19.35	14.32	19.38	Oct.	13.14	20.55	
Apr.	19.13	14.75		Nov.	12.86	20.22	
May	18.92	16.07		Dec.	12.68	19.58	
June	18.57	16.85		Average for Year	17.53	17.49	
July	18.71	18.00					

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At	ON HAND			AFLOAT			ON HAND AND AFLOAT		
End of	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	55,198	76,172	110,244	46,296	45,312	41,256	100,434	121,484	151,500
Feb.	58,035	91,186	108,955	46,935	42,166	43,316	104,970	133,352	152,271
March	61,822	85,740		43,567	49,600		105,389	135,340	
April	55,261	92,757		41,905	38,963		97,166	131,720	
May	64,360	94,563		40,303	44,181		104,663	138,744	
June	60,460	89,250		40,907	47,233		101,367	136,483	
July	64,900	98,469		38,062	40,587		102,962	139,056	
Aug.	60,870	96,148		37,360	40,937		98,230	137,085	
Sept.	62,078	97,829		42,464	37,966		105,542	135,793	
Oct.	64,089	97,452		52,930	42,804		117,919	140,256	
Nov.	69,385	101,034		47,311	37,076		116,696	138,110	
Dec.	72,520	100,130		52,020	47,938		124,540	148,068	

(Rubber Association of America figures raised to 100%.)

Stock of Crude Rubber in London

(No. of tons in Wharves and Warehouses, including Latex)

At end of:	1920	1921	1922	1923	1924	1925	1926	1927
Jan.	19,300	56,573	67,252	73,498	57,460	27,172	9,994	54,994
Feb.	18,329	59,439	67,623	70,483	56,732	23,425	10,004	58,826
Mar.	18,969	63,918	66,670	63,438	55,647	18,104	13,127	63,055
Apr.	20,072	68,759	68,637	58,770	54,559	12,949	18,773	66,897
May	20,921	70,403	70,146	54,439	51,615	5,895	20,384	67,169
June	22,517	69,408	71,597	51,050	51,115	5,318	23,984	63,902
July	25,346	71,065	71,515	49,937	52,073	4,258	27,727	63,717
Aug.	30,674	73,211	72,112	58,427	49,700	4,619	30,165	64.491
Sept.	35,504	72,175	70,977	54,523	44,011	5,453	35,077	68,236
Oct.	41,743	69,229	68,536	58,891	37,523	5,086	42,138	69,569
Nov.	45,550	70,786	68,548	60,074	33,593	3,869	44,057	67,050
Dec.	50,652	69,792	72,299	60,246	29,488	5,697	48,918	.....

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1927					
July	63,917	64,163	63,511	62,819	63,626
August	64,177	64,557	64,842	64,259	———
September	65,162	66,148	66,664	67,253	———
October	68,519	70,167	70,916	70,060	69,551
November	69,660	69,501	69,850	67,318	———
December	65,869	66,011	64,761	63,397	63,207
1928					
January	64,360	65,524	65,450	66,285	———
February	65,909	64,945	63,769	63,103	———
March	61,978	61,920	61,033	59,644	58,197
April					
May					
June					

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1926	1927	1928	End of	1926	1927	1928
Jan.	16,726	25,440	25,868	July	23,101	22,558	
Feb.	13,653	26,766	22,867	Aug.	23,362	25,764	
Mar.	18,389	27,844		Sept.	25,997	25,178	
Apr.	16,328	24,543		Oct.	26,614	25,790	
May	16,967	25,133		Nov.	25,486	28,369	
June	19,416	21,898		Dec.	26,443	25,798	

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1922	16,297,735	0.0	1925	26,001,664	66.8
1923	23,140,620	0.6	1926	24,199,524	78.8
1924	21,863,311	19.7	1927	19,700,003	79.1
1927			1928		
July	1,679,587	84.4	January	1,811,534	87.8
August	1,825,905	80.2	February	1,806,437	86.5
September	1,727,122	77.7	March		
October	1,354,924	81.4	April		
November	838,591	67.8	May		
December	1,134,421	80.0	June		

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1924	1925	1926	1927	1928
January	11,918,000	14,386,000	17,582,000	17,888,000	20,939,000
February	9,626,000	13,210,000	15,814,000	18,240,000	21,136,000
March	10,961,000	14,890,000	19,302,000	22,464,000	
April	14,583,000	19,013,000	20,848,000	23,371,000	
May	15,889,000	20,459,000	24,213,000	26,579,000	
June	16,421,000	20,724,000	23,803,000	27,799,000	
July	18,610,000	22,879,000	24,752,000	29,784,000	
August	19,825,000	22,323,000	26,912,000	29,779,000	
September	16,871,000	20,177,000	22,929,000	28,409,000	
October	18,029,000	19,826,000	23,973,000	25,497,000	
November	16,607,000	18,024,000	20,618,000	24,400,000	
December	15,663,000	17,954,000	21,419,000	23,718,000	
TOTAL	185,003,000	223,865,000	262,165,000	297,928,000	20,939,000

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927
Production	40,932	45,259	51,633	60,845	61,237	64,489
Shipments	39,987	45,204	50,120	59,262	59,062	64,059
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	4,587	4,965	5,491	2,974	4,932	5,394	9,947	10,482	9,949
Feb.	4,865	5,095		3,436	4,458		11,164	11,075	
Mar.	5,456	6,276		4,561	5,701		12,004	11,583	
Apr.	5,346	6,299		4,980	5,701		12,461	12,122	
May	5,023	6,151		5,211	5,657		12,343	12,462	
June	5,422	6,202		5,724	6,253		11,968	12,462	
July	4,950	5,087		6,337	5,973		10,592	11,326	
Aug.	5,872	5,752		6,744	6,393		9,732	10,721	
Sept.	5,706	4,822		6,040	5,717		9,318	9,722	
Oct.	5,103	4,773		4,544	4,799		9,917	9,665	
Nov.	4,324	4,502		3,733	4,306		10,297	10,136	
Dec.	4,683	4,497		4,718	4,165		10,456	10,264	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927
Production	50,850	60,116	70,706	82,614	76,618	70,823
Shipments	49,673	59,072	68,016	81,004	71,591	72,896
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	6,809	5,337	5,441	3,723	6,016	6,072	14,361	15,585	12,982
Feb.	6,825	5,658		3,736	5,120		17,090	16,075	
Mar.	7,030	7,184		4,987	6,157		19,131	17,096	
Apr.	6,554	7,373		5,051	6,359		20,674	17,801	
May	6,149	6,737		6,304	6,140		21,141	18,389	
June	6,171	6,306		6,898	6,832		20,243	17,858	
July	5,729	5,284		8,569	7,070		17,267	16,004	
Aug.	7,424	6,480		9,579	7,983		15,462	14,664	
Sept.	7,590	5,651		7,762	6,758		15,312	13,511	
Oct.	6,208	5,065		5,474	5,024		15,929	13,539	
Nov.	4,852	4,775		4,045	4,723		16,604	13,585	
Dec.	5,277	4,969		5,463	4,712		16,200	13,692	

(1) Rubber Association of America figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1921	1,595,304	1,452,902	142,402	66,246	61,098	5,148	1,661,550
1922	2,547,208	2,302,923	244,285	102,053	94,904	7,149	2,649,261
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927							
Jan.	238,926	199,650	39,276	15,376	11,745	3,631	254,302
Feb.	304,758	264,171	40,587	18,655	14,826	3,829	323,413
March	394,430	345,911	48,519	23,250	19,723	3,527	417,680
April	404,743	357,009	47,734	24,611	20,890	3,721	429,354
May	404,099	357,148	46,951	25,708	21,991	3,717	429,807
June	321,959	278,728	43,231	19,208	16,470	2,738	341,167
July	268,474	236,866	31,608	10,987	8,719	2,268	279,461
Aug.	308,807	274,378	34,429	12,526	10,139	2,387	321,333
Sept.	260,420	226,440	33,980	11,262	8,681	2,581	271,682
Oct.	219,712	183,041	36,671	7,791	6,236	1,555	227,503
Nov.	134,381	109,742	24,639	6,617	5,173	1,444	140,998
Dec.	133,178	105,784	27,394	3,435	2,277	1,158	136,613
TOTAL	3,393,887	2,938,868	453,019	179,426	136,870	32,556	3,573,313
1928							
Jan.	225,039	199,032	26,007	8,463	6,705	1,758	233,502
Feb.	323,368	290,830	32,358	12,504	10,315	2,189	335,872
March							
April							
May							
June							
July							
Aug.							
Sept.							
Oct.							
Nov.							
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(*Long Tons*)

	BRITISH MALAYA[1]								DUTCH EAST INDIES[2]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[3]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082*	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,523
1926	391,328	151,248	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1926:															
Jan.	30,452	10,237	20,215	4,246	1,273	416	472	289	4,110	6,239	8,165	866	1,284	1,805	49,380
Feb.	30,440	8,306	22,134	5,120	725	488	450	253	4,524	5,717	6,854	554	2,759	1,978	51,556
Mar.	35,012	14,800	20,212	5,177	1,113	792	561	418	4,527	5,566	11,984	573	2,126	1,899	54,948
Apr.	28,727	10,565	18,162	3,766	590	679	374	293	4,226	4,598	6,285	410	2,318	1,529	38,230
May	31,231	10,604	20,627	3,944	691	927	410	279	4,440	5,358	8,737	502	1,353	1,464	48,732
June	30,624	11,764	18,860	4,208	452	779	512	275	4,444	6,125	10,614	549	1,213	1,279	49,310
July	28,824	15,280	13,544	4,422	938	911	498	439	4,618	5,612	13,112	1,521	1,565	1,148	48,328
Aug.	34,625	13,595	21,030	5,666	521	890	476	316	4,132	5,699	10,390	378	1,888	1,097	52,483
Sept.	35,913	13,972	21,941	6,015	651	888	689	457	4,065	6,568	11,391	681	2,156	822	56,324
Oct.	39,367	15,203	24,164	5,672	634	805	473	385	4,058	6,998	11,491	661	1,904	1,023	58,268
Nov.	34,302	12,201	22,101	4,228	1,110	685	547	285	3,988	5,816	9,422	718	1,911	1,259	52,070
Dec.	36,811	14,716	22,095	6,498	1,176	895	617	338	5,054	7,117	12,786	790	3,821	714	61,901
1927:															
Jan.	34,946	14,995	19,951	6,697	921	959	585	304	4,187	6,706	10,690	941	3,482	981	56,404
Feb.	27,528	11,697	15,831	3,571	1,469	552	445	360	4,078	6,526	10,535	675	2,104	1,098	47,244
Mar.	41,346	17,464	23,882	7,142	1,124	997	639	432	5,657	7,004	12,905	733	3,178	1,791	65,484
Apr.	29,041	13,069	15,972	3,349	723	984	452	526	4,666	5,531	10,197	557	2,451	1,520	46,928
May	31,393	15,491	15,902	3,124	760	786	415	348	5,430	5,529	13,410	586	2,460	1,207	49,957
June	32,607	14,706	17,901	3,348	856	1,100	539	409	4,818	5,518	9,109	772	889	1,731	46,990
July	23,947	12,697	11,250	4,018	827	859	544	333	4,771	6,142	11,566	519	1,757	1,113	43,699
Aug.	30,371	17,105	13,266	5,357	688	1,133	623	546	4,355	6,682	12,440	716	1,928	969	48,703
Sept.	29,835	12,095	17,740	4,911	479	645	566	498	3,635	5,957	9,853	497	2,072	1,213	48,066
Oct.	29,846	15,801	14,045	5,245	802	721	591	542	3,810	7,755	13,633	775	2,752	939	51,520
Nov.	28,277	19,860	8,417	4,464	1,277	1,241	591	600	4,127	6,587	14,395	683	2,369	1,627	46,378
Dec.	32,185	17,865	14,320	4,130	1,395	946	592	664	5,763	7,878	13,438	1,191	3,340	1,444	55,101
1928:															
Jan.	27,731	16,618	11,113	4,352	1,605	842	500*	525	4,851	7,988	11,360	720	2,273		
Feb.	28,813	12,911	15,902	4,353		667	500*	536				723	1,612		

(1) Mayalan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, and 3,263 in 1926. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, and about 20 tons in 1926. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, and about 60 tons in 1926. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Italy, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(*Long Tons*)

	United States[a]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (ac)	Italy	Russia (ce)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,562
1922	296,267	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	-3,807	1,778	589	567	395,885
1923	300,372	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	408,018
1924	317,747	-11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	35,937	19,683	11,117	11,412	7,089	4,757	2,930	875	3,149	1,155	1,558	516,493
1926	395,667	34,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	613,643
1926:															
January	40,345	6,886	2,832	703	2,188	892	760	332	428	76	163	303	89	134	56,141
February	31,435	3,114	3,063	1,113	1,865	741	1,041	643	512	143	88	397	145	75	44,375
March	40,316	8,907	3,941	1,342	2,079	864	1,037	832	547	129	227	377	109	161	60,868
April	33,416	8,275	4,121	1,781	1,615	1,868	865	402	505	71	93	335	130	193	53,670
May	28,705	6,773	2,519	1,848	1,239	1,010	705	200	468	186	241	225	60	192	44,371
June	23,795	5,894	2,196	1,655	1,188	1,465	1,070	983	636	269	215	303	123	103	39,895
July	34,266	6,768	2,352	2,202	1,552	1,447	800	132	702	295	480	292	121	115	51,524
August	26,081	7,327	2,457	2,110	1,888	1,284	796	655	1,275	303	594	336	90	151	45,347
September	35,675	8,843	1,774	2,029	1,355	1,922	919	472	1,241	283	429	317	91	138	55,388
October	28,110	8,082	3,376	2,423	1,865	2,396	645	585	1,004	301	2	360	100	121	49,370
November	37,673	9,247	2,719	3,007	1,548	3,330	832	568	916	194	-18	358	90	181	60,695
December	35,850	4,749	2,890	2,562	1,847	856	439	725	777	248	156	443	151	306	51,999
1927:															
January	41,815	10,192	3,284	2,481	1,936	1,227	672	803	929	296	192	316	139	100	64,382
February	25,886	7,692	3,263	3,103	2,620	1,902	601	907	460	502	152	336	146	210	47,780
March	32,752	9,049	2,050	3,475	3,760	1,578	852	784	780	454	86	385	137	127	56,269
April	44,627	7,875	2,310	2,393	1,509	2,181	781	1,972	762	448	58	230	177	218	65,541
May	33,736	2,986	2,006	3,380	2,519	1,084	918	887	694	626	-57	335	155	223	49,402
June	31,276	2,282	2,387	3,632	2,086	798	942	1,506	557	583	-17	243	164	183	46,616
July	35,719	1,116	2,384	2,899	2,104	1,505	1,007	415	900	429	66	227	177	236	49,184
August	31,001	2,463	2,795	3,119	2,013	1,970	1,274	386	650	604	-63	312	188	123	47,785
September	29,801	7,800	1,956	2,891	1,850	2,025	684	518	772	552	-33	451	155	272	49,694
October	27,671	5,888	3,479	4,202	1,790	1,966	1,021	1,075	908	465	156	401	153	363	49,538
November	38,123	1,887	3,661	4,209	1,916	1,575*	1,167	1,312	836	749	298	474	246	317	54,570
December	28,082	809	4,696	3,108	2,302	2,710	1,462	1,453	1,242	784	-202	514	268	300*	47,028
	398,483	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,492	636	4,224	2,055	2,672	627,789
1928:															
Jan.	37,552	1,921	1,764	2,485	2,290	1,372	546	572		589	52	261			
Feb.	30,926	3,143		2,984	2,553										

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—United Kingdom exports to Russia, and beginning with October, 1927, exports from the United States to Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. *United States imports of guayule are not included in this compilation: such imports amounted to 4,305 tons in 1926 and to 4,988 tons in 1927.

No Increase in Rim Production

THE February report of the Tire and Rim Association of America, Inc., indicates a production last month of approximately the same number of rims as were approved in January but a gain of 50,000 as compared with the production in February a year ago. The total number of rims approved reached 1,806,437 as compared with 1,811,534 rims approved in January and 1,753,224 in February, 1927.

Rim Size	Feb. No.	1928 %	2 Mos. 1928 No.	2 Mos. 1928 %
Motorcycle				
24x3	2951	0.2	7023	0.2
26x3	12000	0.7	12428	0.3
28x3	—	—	452	0.0
Total	14951	0.9	19903	0.5
Clinchers				
30x3½	29749	1.7	72055	2.0
31x4	—	—	—	—
Total	29749	1.7	72055	2.0
18" Balloons				
18x3½	577	0.0	9362	0.3
18x4	76346	4.2	193053	5.3
18x4½	7235	0.4	11830	0.3
18x5	—	—	—	—
Total	84158	4.6	214245	5.9
19" Balloons				
19x3½	136358	7.5	217704	6.0
19x4	165779	9.3	340814	9.4
19x4½	118669	6.6	185073	5.1
19x5	—	—	—	—
Total	420806	23.4	743591	20.5
20" Balloons				
20x3½	58845	3.3	105500	2.9
20x4	264751	14.8	526618	14.6
20x4½	35404	2.0	96469	2.7
20x5	32399	1.8	77924	2.1
20x6	21906	1.2	31107	0.9
Total	413305	23.1	837618	23.2
21" Balloons				
21x3½	36225	2.0	106955	3.0
2.75-21-D	477346	26.4	980283	27.6
21x4	78769	4.3	160704	4.1
21x4½	48564	2.7	107908	3.0
21x5	541	0.0	1526	0.0
21x6	—	—	—	—
Total	641445	35.4	1357376	37.7
22" Balloons				
22x4	756	0.0	756	0.0
22x4½	—	—	—	—
Total	756	0.0	756	0.0
High Pressure				
30x3½-23	4419	0.2	7943	0.2
32x4½-23	7283	0.4	10466	0.3
32x4 -24	3874	0.2	7112	0.2
33x4½-24	—	—	406	0.0
33x4 -25	610	0.0	1293	0.0
34x4½-25	—	—	—	—
Total	16186	0.8	27220	0.7
20" Truck				
30x5 -20	137495	7.6	265515	7.3
32x6 -20	21722	1.2	37151	1.0
34x7 -20	6673	0.4	13336	0.4
36x8 -20	6112	0.3	9156	0.3
40x10-20	789	0.0	1259	0.0
Total	172791	9.5	326417	9.0
22" Truck				
36x7 -22	332	0.0	614	0.0
24" Truck				
34x5 -24	2355	0.1	5085	0.1
36x6 -24	3504	0.2	5556	0.2
38x7 -24	2265	0.1	2818	0.1
40x8 -24	3834	0.2	4550	0.1
44x10-24	—	—	167	0.0
Total	11958	0.6	18176	0.5
GRAND TOTAL	1806437		3617971	

Tire Production Gains During January

A SUBSTANTIAL increase over the December figures was made during January in both the production and shipments of tires and inner tubes, according to the report of the Rubber Association of America. Inventories also showed an encouraging decrease, indicating that dealers requirements were keeping well abreast of the manufacturers' output. The figures released by the Rubber Association represents 75 per cent of the total industry in the United States and have been brought up in each case mentioned herein to equal 100 per cent.

The great increase in the January figures reflect the boost in automobile production and the resulting increased demand for original tire equipment. The excellent response reported from dealers for spring dating orders is also responsible in part for the good showing. The jump in the production of pneumatic casings of all types was approximately 800,000 casings over the December figures, and the total output was higher than for any month since August of last year. Detailed figures follow:

	January, 1928			December, 1927		
	Prod.	*Ship.*	*Inven.*	*Prod.*	*Ship.*	*Inven.*
Pneumatic Casings	(All Figures Represent Thousands)					
All types	5,491	5,394	9,949	4,497	4,165	10,264
Balloon	3,170	3,319	4,875	2,433	2,281	5,125
High Pressure Cord	2,246	1,995	4,806	1,983	1,824	4,866
High Pressure Fabric	75	80	268	81	60	273
Solid and Cushion Tires	48	45	215	43	42	211
Inner Tubes—						
All types	5,441	6,072	12,982	4,969	4,712	13,692
Balloon	3,215	3,386	5,878	2,157	2,312	6,131
High Pressure	2,226	2,686	7,104	2,812	2,400	7,661

Further detailed comparative tables covering previous months with yearly totals will be found in the statistical section of this issue of THE RUBBER AGE.

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